THE RAILWAY GAZETTE
A Journal of Management, Engineering and Operation
INCORPORATING
The Railway Engineer · TRANSPORT · The Railway News
The Railway Times · Herapath's Railway Journal · RAILWAY RECORD.
RAILWAYS ILLUSTRATED · ESTABLISHED 1835 · THE RAILWAY OFFICIAL GAZETTE

PUBLISHED EVERY FRIDAY
AT
33, TOTHILL STREET, WESTMINSTER, LONDON, S.W.1

Telegraphic Address: "TRAZETTE PARL., LONDON"
Telephone No.: WHITEHALL 9233 (6 lines)

Annual subscription payable in advance and postage free:
British Isles and Abroad.....£2 5s. 0d.
Single Copies.....One Shilling
Registered at the General Post Office, London, as a Newspaper

VOL. 66. No. 23 FRIDAY, JUNE 4, 1937

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Congress Sidelights

WHATEVER value the discussions now proceeding at the International Railway Congress in Paris may add to the reports already presented—and preliminary estimates vary considerably—there can be little doubt as to the benefit to be derived from some of the visits arranged for the delegates. It is all very well to read descriptions of achievement, but there is nothing like seeing for oneself. To be present when an engine, specially modified for a particular purpose, is on the test bench at Vitry, is to understand at once the immense value of such a plant in demonstrating quickly and economically whether or not the particular equipment is likely to be effective in service. Such reliable and rapid tests are for practical reasons impossible on the road. Again, at the visit to the up-to-date carriage cleaning and inspection depot of the Nord at Le Landy not only was there an opportunity to examine one of the standard push-and-pull 8-car suburban trains of that company, but they could be seen at work on the adjoining lines, running up to 60 m.p.h. with equal facility whether the engine was pushing or pulling. The quick turnround of these trains at the terminus was also observed. The Nord, it may be recalled, is for military reasons not permitted to electrify any of its lines.

Railway and Canal Commission Report

The latest report of the Railway and Canal Commission, covering the year 1936, shows that in that year the commission was still functioning in Northern Ireland, although there were no applications before it from that territory. Since the date of the report there has been a change in the personnel of the Court, in that, on the promotion of Sir F. D. MacKinnon to the Court of Appeal, Mr. Justice Finlay has been appointed the *ex-officio* Commissioner for England. The report is concerned almost entirely with proceedings arising under the Railways (Valuation for Rating) Act, 1930, and under the Mines (Working Facilities and Support) Acts, 1923, and 1926, and the Mining Industry Act, 1926, and the matters of railway interest have been confined to valuation for rating problems. The judgment of the House of Lords supporting the decision of the Court given in 1935 on the net annual value of the Southern Railway was delivered early in 1936, and the valuations of the three other main-line companies based on the principles settled in the Southern case have been agreed without having recourse to the commission. On the question of "let out" properties at stations the decision of the commission has been reversed by the House of Lords, which was not bound by a previous decision of the Court of Appeal in Smith *v.* Lambeth on the subject of railway bookstalls, as the commission had believed itself to be.

* * * *

The Week's Traffics

Comparison with a week in 1936 which included the Whitsuntide long-distance bookings up to Whitsunday (to the previous day on the L.N.E.R.) accounts for the large decreases in passenger train receipts for the past week, in which ordinary conditions prevailed. As will be seen from the accompanying table, the general increase in coal class traffics and the more moderate gains in merchandise on the L.M.S.R. and L.N.E.R. were insufficient, except on the L.N.E.R., to counteract the fall in passenger train earnings, and the percentage of increase in the aggregate takings for the year to date has fallen in each instance.

	21st Week				Year to date	
	Pass., &c.	Goods, &c.	Coal, &c.	Total	Inc. or Dec.	
	£	£	£	£	£	%
L.M.S.R. ..	−140,000	+ 11,000	+56,000	− 73,000	+ 952,000	+ 3·93
L.N.E.R. ..	− 53,000	+ 23,000	+40,000	+ 10,000	+ 751,000	+ 4·18
G.W.R. ..	− 57,000	− 4,000	+24,000	− 37,000	+ 415,000	+ 4·19
S.R.	− 74,000	− 8,000	+ 4,000	− 78,000	+ 252,000	+ 3·30

London Transport receipts for the past week amounted to £470,500, which was a reduction of £99,800 on the corresponding week last year. The aggregate for the 48 weeks is £26,437,900, an increase of £253,800. On the Great Northern Railway (Ireland) there was an increase of £650 for the past week, and the Great Southern had a gain of £617.

* * * *

Railway Rates Tribunal Report

A very full account of its proceedings is given in the fifteenth annual report of the Railway Rates Tribunal, which covers the year 1936. An account is given of the annual review of exceptional rates and charges with useful figures and statistics, and considerable space is allotted to the changes in railway freight rebates brought about by the substantial reductions in the rating assessments of the four main-line railway companies following on the House of Lords decision in the Southern Railway case. The Railway Freight Rebates Act, 1936, and the procedure thereunder is also explained. Applications for the approval by the tribunal of agreed charges under the Road and Rail Traffic Act, 1933, numbered 567 in 1936, compared

with 383 in 1935, and short particulars of these applications and the proceedings thereon are given in the fourth schedule to the report. Appointments and reappointments to the General and Railway Panels of the tribunal are recorded. No applications have yet been made to the tribunal for the exercise of its jurisdiction under the Railway (Road Transport) Acts, 1928, nor under the London Passenger Transport Act, 1933.

* * * *

Overseas Railway Traffics

Traffics of the principal Argentine railways have continued good, and during the past two weeks the Central Argentine has further improved its receipts by £84,384, the Buenos Ayres & Pacific by £43,373, the Buenos Ayres Great Southern by £42,852, the Buenos Ayres Western by £9,968, and the Cordoba Central by £18,310. At this time a year ago the earnings of the Pacific showed an advance of £267,493 on those for the year 1934-35, but the Great Southern takings were £654,828 down, and those of the Central Argentine showed a decrease of £199,507. The Canadian Pacific, which at the end of April had an aggregate increase of £734,600, had a gain of £265,000 in net earnings for the first four months of the year. On the Leopoldina Railway there was an increase for the week of £6,739, bringing the aggregate advance for the 22 weeks of the current year to £111,444. The San Paulo for the 21st week records an improvement of £1,233 with a slight decrease in currency. To date it has an increase of £63,337, or 3,575 contos.

	No. of Week	Weekly Traffics	Inc. or Decrease	Aggregate Traffic	Inc. or Decrease
		£	£	£	£
Buenos Ayres & Pacific ..	48th	103,576	+ 20,412	4,605,068	+ 514,899
Buenos Ayres Great Southern ..	48th	128,164	+ 16,589	7,178,306	+ 945,659
Buenos Ayres Western	48th	48,015	+ 8,062	2,405,041	+ 220,585
Central Argentine	48th	139,439	+ 45,256	7,362,046	+ 1,715,128
Canadian Pacific	20th	525,400	+ 7,000	10,321,600	+ 780,400
Bombay, Baroda & Central India	7th	274,650	+ 20,025	1,421,250	+ 55,875

* * * *

Railway Education in the Far East

It would be difficult to find anywhere in the world a more remarkable railway educational system than that which has been built up during the past 30 years by the South Manchuria Railway. Not content with training children of ordinary school age, the company has established no fewer than 26 kindergartens, accommodating 2,600 children of under that age, with a staff of 67 teachers and nurses. Then there are 74 primary railway schools, and, in addition, eight outside Manchu schools receive monetary assistance from the railway. The course is normally six years, but in 23 of these schools an additional two-year course is provided for students who cannot receive secondary education. The company has opened an Educational Research Institute at Mukden to study conditions and methods of teaching most suitable to Manchukuo. Altogether, there are about 30,000 children and 850 teachers at S.M.R. schools. But the activities of this enterprising railway do not end there, for it has, in addition, a further 35 supplementary schools giving a supplementary education. In nine of these, which are devoted to vocational training, commerce, engineering of various kinds, metal-working, &c., are taught, in addition to Japanese, English, Chinese, Russian and mathematics. The quantity of instruction imbibed is, therefore, remarkable. To 13 of the higher primary schools are attached domestic science schools for girls, and there are also two agricultural, two commercial and two technical schools for youths who have graduated at primary schools. As well as these six higher schools, there are 13 secondary schools, with 6,700 students. But the highest educational institutions of this unique railway take the form of a teachers' training, a technical, and a medical college.

* * * *

C.P.R. and Government Grants

An authoritative statement as to the nature and extent of the contributions of the Dominion towards the construction of the Canadian Pacific Railway was made by Sir Edward Beatty in the course of his address at the recent annual meeting of the company. One of the basic conditions under which the Province of British Columbia entered Confederation in 1871 was that the Dominion Government should provide a transcontinental railway. By 1881 certain sections had been constructed or were in course of construction by the Government, but the greater part of the main line had not been begun nor placed under contract. Under an agreement ratified by the Act of February, 1881, the company undertook to complete the transcontinental railway by May 1, 1891, and thereafter to maintain and work the Canadian Pacific Railway, in consideration of which the Government agreed to contribute to the company $25,000,000 in cash, 25,000,000 acres of Crown lands, and the lines already constructed or under contract totalling 713 miles. Notwithstanding almost insurmountable obstacles the main line was completed five years ahead of the contract date. There has been some Government assistance in the form of temporary and well-secured loans, but these have all been repaid in full. It is the railway which has given their commercial value to the company's Crown-granted lands, a value which has also been imparted to all other lands tributary to its lines.

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Visitors to the Reichsbahn

The German State Railway reports a large increase in the number of visitors from other countries to study its equipment and methods of working. In 1936 there were 1,320, mostly railwaymen, as against 850 in the previous year, from 42 countries. England heads the list with 175 visitors, which presumably includes the 106 members and friends of the Institution of Locomotive Engineers who made a week's tour in Germany on the occasion of the institution's Jubilee. Sweden is next, with 135 visitors: then come Hungary with 120, Jugoslavia with 85, Poland with 80, Italy with 70, Bulgaria with 60, France, China, and Denmark with 50 from each; and others with smaller numbers. No visitors are reported from Portugal, Russia or Spain. There were 446 visitors to the railway repair shops; 262 to electric traction installations; 207 made trial runs with new locomotives and railcars; and 200 inspected the Nord-Süd railway works in Berlin. There were 26 official visits, including members of technical colleges and associations of railwaymen. Ten Reichsbahn officials made journeys of investigation abroad. Thirty-six foreigners, 14 of them Turkish, were occupied in the various Reichsbahn departments for training during the year. Such exchange visits cannot fail to promote the advancement of railway science. All who have had the opportunity of meeting Reichsbahn officers and inspecting the departments and equipment will acknowledge how generously they are always received and the thoroughness with which everything is done in German railway working.

* * * *

Netherlands Railways and Air Raid Protection

The Netherlands Railways recently took part in a "black out" exercise from 8.15 to 9.45 p.m. in the province of Gelderland. This entailed the extinction of all ordinary lights at stations and depots, except signal lamps, candles being used where some light was indispensable,

or oil lamps covered with blue shades, curtains being drawn or paper fixed over windows. Lights at level crossings were screened and pocket torches used to light passengers on their way where necessary. All trains had their lights out, save head and tail lights. Firebox doors were opened as seldom as possible and no lights allowed during the cleaning of rolling stock. Special experimental measures were also taken in addition to these general ones. Certain trains had their head and tail lights reduced to thin horizontal strips. At one station where there were electric signal lights these were covered with special hoods; at another the voltage was reduced. In one signal box the lights were made blue, in another fitted with long conical shades, and special light equipment was installed at two level crossings. Inspectors went round the district by special train and aeroplane, and reported that no train or station could be recognised from the air. An occasional red light was seen which could be presumed to indicate a station, but did not enable the railway to be localised with any accuracy. Our Dutch contemporary, *Spoor- en Tramwegen,* reporting the experiment, says the staff carried out their instructions without error.

* * * *

Success of an Interesting Light-Freight Experiment

An interesting example of one of the enterprising measures adopted by railways to retain and increase business is given in the current issue of *On Time*, the journal of the L.M.S.R. Operating Department. Towards the end of 1933, the L.M.S.R. in Manchester was faced with a serious position owing to the ability of road hauliers to collect traffic in the city of Manchester and deliver it to customers in outlying towns and villages of industrial Lancashire the same afternoon, whereas the railway company could not deliver until the following day. Principally in order to retain this traffic, special services were experimentally introduced for the conveyance of light goods and parcels over a series of circular routes around Manchester. So successful have these trains been that, although originally comprising a 2-4-2 tank engine and a bogie parcels van, pipe-fitted goods vans are also being loaded today. The 1,328 parcels and 2,037 goods consignments carried in the first week rose to 2,630 and 5,240 respectively in the sixtieth week. The type of train used represents an interesting operating development inasmuch as it affords many of the advantages of the diesel-engined or other self contained unit, without the high initial cost and subsequent special maintenance which such units involve.

* * * *

A Century of Balancing

It is just one hundred years ago since Thomas Rogers, founder of the Rogers Locomotive Works (now merged in the American Locomotive Company), patented in the U.S.A. the application of weights opposite the cranks, and of a magnitude sufficient to counterbalance the crank and connecting rod, thus introducing the balancing of revolving parts on the present system. Two years later, Braithwaite, on the Eastern Counties Railway in this country, applied balance weights to some four-wheeled engines on the 5-ft. gauge. The balancing of the reciprocating weights by revolving weights added to the wheels was tried first by William Fernihough, who was Locomotive Superintendent of the Eastern Counties Railway after Braithwaite resigned in 1843, and in his evidence before the Gauge Commissioners in 1845 he said that engines so balanced were infinitely more steady afterwards. The principles of balancing were laid down first by Le Chatelier (1849) and D. K. Clark (1855), after Bodmer (1834), Heaton (1847), and others had proposed opposed-piston engines and duplicate sets of reciprocating weights. By his evolution of a simple and accurate graphical method the late W. E. Dalby gave an impetus to the general investigation of balancing, but little further advance was made until the publication of the Bridge Stress Committee's report in 1929, which very properly emphasised the importance of hammer blow and gave rules for its calculation. It is only recently that the divided action of the two cranks and their weights has been recognised in North America, and a good deal of improvement in the riding must have been noticed since the adoption of cross-counterbalancing.

* * * *

Treated Timber in Bridge Building

A press note issued by the Government of India gives the results of intensive researches undertaken at the Forest Research Institute at Dehra Dun. The institute has evolved a type of material and design of construction of timber bridges, which constitute a great improvement on timber bridges hitherto known in India. It is claimed that treated timber bridges provide an economic solution to the problem of all-weather rural roads. Poles of *sal,* teak and other similar species, treated with efficient preservative, form excellent material for building durable railway and highway bridges in most parts of India at considerably less expense than the cost of steel, masonry, or concrete bridges. It is provisionally estimated that the use of treated timber will effect a saving of 30 per cent. to 50 per cent. in the initial cost of a bridge. The press note mentions some of the well-known railway and highway bridges in Europe and America built of wood. It it stated that the longest railway bridge in the world, a 6½-mile trestle bridge located on the Southern Pacific Railway over Lake Ponchartran, is built of wood. In regard to the durability of treated timber bridges, mention is made of the service record of this bridge, which has remained practically intact for over 55 years, only about 6 per cent. of the original timber having been renewed during this period.

* * * *

Wheel-Loads in Western Australia

During the discussion on a paper entitled " Locomotive Design in Western Australia," read by Mr. F. Mills at Perth, W.A., one of the speakers referred to the increasing weight of locomotives and the need for heavier track and bridges to carry them. He pointed out that the Chief Civil Engineer of the Western Australia Government Railways had on a previous occasion remarked that the replacement of light rails had been steadily carried out on the system, with the ultimate object of converting the present 45-lb. to 60-lb. permanent way. This would allow all classes of engines to run anywhere on the system, whereas at present the heaviest types were prohibited from half of it. This railway has a route mileage of 4,358, of which 2,181 miles are laid with 45-lb. track, so that some considerable time would necessarily elapse before this ambitious programme could be effected. The speaker who introduced the subject submitted that utility in motive power should be the keynote of future design, and suggested that a Garratt type locomotive with a 4-6-2 + 2-6-4 wheel arrangement, a maximum axleload of 9·75 tons, coupled wheels 4 ft. dia., and a tractive effort round about 33,000 lb., was the type most suitable to the conditions existing on the Government Railways at the present time. Such an engine would be capable of hauling the heaviest load over practically the whole system, and would in fact bridge the gap during the transition period of laying the heavier 60-lb. permanent way.

XUM

Railway Rates and Charges

AS indicated in these columns on April 30, the Railway Rates Tribunal has announced that it proposes to begin its annual review of the standard and exceptional charges of the main line railway companies on June 14. At this review it will consider the reply made by the companies on April 23 to the tribunal's enquiry as to what, if any, modifications the companies desire to propose. Some misunderstanding appears to have arisen, however, regarding the companies' suggestion that a moderate increase should be made in their rates and charges. It should be borne in mind, therefore, that the 1936 accounts show that the net revenues of the four main line companies were £15,583,018 less than the standard revenues which they are entitled to earn under the provisions of the Railways Act, 1921. Section 59 of that Act provides that if on any review the tribunal finds that the net revenue is less than the standard, and that the deficiency is not due to any lack of efficiency or economy in management, it shall, unless it considers that owing to change of circumstances the deficiency is not likely to continue, make such modifications in all or any of the standard charges, and such corresponding modifications in the level of the exceptional charges as may be considered necessary to enable the companies to earn their standard revenue.

At previous reviews the companies have indicated that, owing to severe trade depression, they were of opinion that an increase of charges would accentuate the depression and would not result in increased net revenue. In these circumstances the tribunal refrained from making any modification, but on this occasion the companies have informed the tribunal that they believe a material improvement in their financial position may be expected from a moderate increase in their charges, and accordingly they desire to propose an increase of 5 per cent. or thereabouts. In reaching this conclusion the companies have in mind not only the deficiency in their standard revenue, but the general revival in trade and industry throughout the country, and the greatly increased costs of practically every commodity used by them, the purchase of which constitutes a large proportion of their expenditure. While, therefore, the companies will afford every assistance to the tribunal in the discharge of its duty, the decision as to whether railway charges shall be increased, and, if so, to what extent, is a matter entirely for that body, to whom trading and other organisations and associations can make representations on behalf of their members during the course of the review. Before reaching any decision on the point, the tribunal is directed by the Act to have regard to the financial results obtained from the operation of any ancillary or subsidiary businesses carried on by the companies, and, if satisfied that the net revenue resulting therefrom is, having regard to all the circumstances, unduly low, may for the purpose of such review, make such alterations in the charges which would otherwise have been fixed as it thinks proper. The net revenue derived from the operation of these businesses represents only a relatively small proportion of the total net revenues of the companies, and the actual charges are not subject to the jurisdiction of the Rates Tribunal. If, however, that body decides to authorise an increase in railway charges, the companies will doubtless give consideration to the question of maintaining the relative profitability of these businesses.

A further point is that Section 59 (7) of the Act provides that any modifications made in railway charges shall take effect as from July 1 or such other date as the tribunal may fix. As the review does not begin until June 14, any decision of the Tribunal to increase charges could not possibly become effective on July 1, as it would be impracticable for the companies to introduce by that date the many new scales which would be required. Any increase, therefore, would have to be made operative as from a later date in the year. It will be observed also that the companies have informed the tribunal that their proposal does not apply to London suburban passenger fares. This is because the jurisdiction of the tribunal, as defined in the Railways Act, 1921, was modified by the London Passenger Transport Act, 1933, and they are unable to consider any request for the modification of these fares on the occasion of this review. The companies will have to make a separate application to the tribunal should they desire to increase these fares, and, before doing so, they would obviously have to consult the London Passenger Transport Board, which is so vitally concerned with the level of passenger fares generally in this area.

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The Railway Position in the U.S.A.

LIKE the British railways, the railways of the U.S.A. benefited by greatly improved industrial conditions in 1936. The following figures reveal the extent of the slump which followed 1929, and the gradual revival of the last four years:—

	Net railway operating income. $	Return on property investment.* Per cent.
1929	1,251,697,938	4·84
1930	868,878,773	3·30
1931	525,627,852	2·00
1932	326,298,008	1·24
1933	474,212,304	1·80
1934	462,706,910	1·77
1935	497,359,578	1·92
1936	665,479,894	2·57

* Property investment is the value of road and equipment as shown by the books of the railways, including materials, supplies, and cash.

The gross operating revenues of the Class 1 railways last year amounted to $4,043,915,602, an increase of 17·4 per cent. over 1935, while operating expenses amounted to $2,925,127,071, an increase of 13·0 per cent. over 1935. Nineteen Class 1 railways failed to earn expenses, and 1,523 miles of unprofitable branch lines were abandoned during the year. The net operating income was the best since 1930, although little more than half that earned in 1929, which may be regarded as the last normal year. Freight traffic showed an encouraging increase, 36,063,307 cars having been loaded compared with 31,504,134 in 1935, an increase of 4,559,173 cars. To deal with this increased traffic, approximately 42,000 new freight cars were placed in service, and there was a reduction of about 50,000 in the number of cars awaiting repair at the end of the year. Passenger traffic also showed considerable improvement, exceeding that of any year since 1930. Twenty-two thousand million passenger miles were run, an increase of 19 per cent. over 1935. The handling of this additional traffic naturally involved a heavy increase in expenditure in respect of wages, purchases of supplies and materials, and maintenance. The number of railroad employees increased to a point higher than at any time in the past five years.

The year was notable for the acceleration of both freight and passenger trains. Many freight trains were expedited to permit of an overnight service between localities as far as 400 miles apart, and there was a marked saving of time in passenger train schedules. It is significant that much of the increased efficiency of the American railways is

attributed to the extensive research and engineering development of recent years. In this connection during the last six years about $33,000,000 have been spent on electrification; $45,000,000 on air-conditioning; and large sums on experimental trains and other improvements. The principal factor in the substantial improvement of the position last year was, of course, the revival in trade and industry. The railway recovery, however, was not commensurate with the general increase in prosperity, and the index of rail traffic was by no means up to the general index of distribution. Nevertheless, the partial recovery was sufficient to justify the hope that the 1937 revenue will at least approach, if not exceed, that of 1930.

There are, however, several factors which make the outlook somewhat uncertain for the time being. Perhaps the most important of these is the rates question. In April, 1935, the Interstate Commerce Commission authorised an increase in freight charges. These emergency charges expired on December 31 last, and the commission has declined to continue them. Endeavours are being made to secure a compromise, and much will necessarily depend upon whether the railroads are successful in obtaining authority for a readjustment of their rate structure. Failure to do so will be a serious blow to railway recovery, it being estimated that an increase of 10 per cent. in freight carryings would be necessary to make up the net earnings now being lost in consequence of the decrease in rates as from January 1. Another vital factor in the outlook for 1937 is the heavy increase in the cost of stores and materials. Sleepers and other forest products are already nearly 40 per cent. higher than in 1933; iron and steel prices have increased by 20 per cent.; and the prices of various miscellaneous items have advanced between 20 and 30 per cent. A third factor, a predictable element, is State legislation. If Congress should enact new laws, throwing heavy burdens upon the railways, it will render further recovery very difficult, and might, in fact, result in the loss of the advantage already gained. It will be appreciated, therefore, that the outlook for 1937, although distinctly hopeful, is somewhat clouded by the uncertainty of events which lie beyond the control of the railways.

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Pennsylvania Railroad

ALL items of operating revenue on the Pennsylvania Railroad showed increases during the year 1936, reflecting the general improvement of business throughout the country. In freight revenue the gain was $61,302,804, or 22·5 per cent., and in passenger revenue it was $7,755,059, or 13 per cent., making the third successive year in which there has been an improvement on the passenger side after a long period of decreases. Total operating revenues from all sources increased by $73,613,003, or 20 per cent., over 1935, and the heavier traffic of the year was moved with a proportionately smaller additional outlay for transportation expenses, which increased $20,182,620, or 15 per cent. In purely operating expenses, apart from taxes and hire of equipment, the increase was $50,987,516, or 19 per cent., one of the principal items being the advance by $29,059,588 to $131,701,065 in maintenance expenditures necessary to overtake some of the work postponed during the period of depression. The operating ratio in 1936 was 71·15 per cent., compared with 71·53 per cent. in 1935, and was, with one exception, the lowest in 16 years. Taxes accounted for $34,714,148, an increase of $9,329,402, and required almost eight cents out of each dollar of operating revenue. After meeting all obligations and providing for sinking and other funds, there remained a surplus for the year of $31,399,351, equivalent to 4·8 per cent. on the capital stock. Two dividends aggregating 4 per cent. ($2 a share) were paid during the year, comparing with a total of 2 per cent. paid for 1935. Some results for the two years are compared in the accompanying table:—

	1936	1935
	$	$
Freight revenues	333,350,239	272,047,435
Passenger revenues	67,552,238	59,797,179
Total operating revenues	441,425,189	367,812,186
Operating expenses, taxes, etc. ..	357,244,596	297,417,545
Net railway operating income ..	84,180,593	70,394,641
Gross income	120,300,126	106,920,852
Fixed charges	81,558,035	82,958,266
Net income	38,742,091	23,962,586

On March 17, 1936, a very heavy rainfall caused unprecedented floods in the territory traversed by the company's lines. More than 3,000 miles of line and 8,000 miles of track, or approximately one-third of the entire system, were within the flood areas, and over 500 miles of line were submerged. Embankments were washed away in some cases to a depth of 37 feet; many bridges were damaged and some entirely destroyed. The services of about 15,000 employees were concentrated day and night upon the work of repairs and reconstruction, and the movement of traffic over normal routes was restored within four days. The cost ($7,641,858) of repairing the flood damage was charged to profit and loss account. Work was continued on the improvements at Newark, N.J., which include a new station, additional tracks through the city and three new lift-bridges over the Passaic River. The work is expected to be completed and the entire facilities placed in service during the present year. The new station brings into one building, upon four different levels, four different forms of transportation: standard electrified railroad, interurban electric railway, city electric street car service, and motor vehicle service by bus, taxicab and private car.

In the future, passenger service will be quicker, and equipment will be more comfortable and more attractive than ever before. Freight service will be faster, more convenient, and in its newer forms, will have much wider appeal to the public. The programme of extending air-conditioning in coaches, dining cars and Pullman cars has progressed, and the important trains have been completely air-conditioned. The 10,000 all-steel freight cars ordered in December, 1935, have been completed at a cost of approximately $25,000,000. Reference is made in the report to the satisfactory results of electrification, and to the decision of the directors to extend the work of electrification so as to complete the electrification programme heretofore adopted for the principal eastern lines. It will require about a year and a half to complete the new work, which is expected materially to increase the traffic capacity of the existing steam tracks and also to enable the company to obtain substantially increased advantages from the electrification previously completed. There was a net decrease of $35,436,910 in total funded debt as a result of extensive refunding, bond redemption, and other financial transactions during the year. The net result of these transactions was reflected in a substantial decrease in fixed charges. There was no change during the year in the amount of capital stock outstanding, but the directors have received authority to raise $95,000,000 by further bond issues, to be made from time to time, as they may in their discretion determine, and in every case there will be a public announcement before any issue is made. The company, with its wide-spread operations, must be in a position to take advantage of market conditions for new security issues at lower rates, and for improvements.

XUM

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

L.M.S.R. Streamlined Locomotive

London, May 31.

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—May I congratulate you most sincerely on the enterprise of THE RAILWAY GAZETTE in publishing general arrangement drawings of the new L.M.S.R. streamlined locomotive in the issue of May 28. The availability of these drawings almost on the day the first engine of the new series left Crewe works is, to my mind, an achievement of unusual distinction, and I am sure that all your "locomotive" readers will think the same.

I have only one regret in connection with the article, namely, that the number and sizes of the boiler tubes are not given. Is it possible that you may be able to provide these in a forthcoming issue? If so, it will mean a valuable addition to an already most excellent contribution.

Yours faithfully,

LOCO ENGINEER (retired)

The particulars required are as follow:—

Tubes

Superheater elements, 40 (triple) 1 in. diameter outs. × 11 S.W.G.
Large tubes, 40 5½-in. diameter outs. × 7 S.W.G. } 19 ft. 3 in. between tubeplates.
Small tubes, 129 2⅜-in. diameter outs. × 11 S.W.G. }

—ED., *R.G.*

The London-Sheffield Train Service

56, St. Mary's Mansions,
Paddington, W.2, May 29

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—Although the suggestion that, in your constant editorial support of acceleration, you have advocated the "showy" improvement of the "best time" by one train, rather than a general speeding-up of the whole service, is too far from the facts to need any refutation, there are points in "Sheffield's" letter, published in your issue of May 28, which ought not to pass unchallenged. In a "business" service, such as that between London and Sheffield, there are certain hours at which fast running is of particular value, and train services in Great Britain, which generally spread their best trains all over the day, in sharp contrast to Continental practice of recent years, still tend to neglect certain obvious commercial requirements—witness the absence of any morning departure, at a reasonable hour, from London to bring passengers to Sheffield, Leeds, Manchester, or Liverpool in time for business before the afternoon.

"Sheffield" rightly instances the clashing of departure times by the old G.C. and Midland routes, but he should in fairness have mentioned that whereas such cases as the 3.20 and 3.30 departures from London are well-established survivals of competitive days, the Midland 4.55 is a post-grouping innovation (of March, 1925), as is also the Midland 3.20 up from Sheffield, which duplicates the G.C. 3.30 service to Nottingham, Leicester, and London. On "Sheffield's" figures of the present average journey-time by the effective service on each route, the G.C. shows a worsening of 1 min. from London and from Sheffield, over the last pre-war winter (Saturdays excepted trains only); but the Midland average has deteriorated by 6 min. down and 5 min. up. The "increased loads of today," apply less to the Great Central and Midland trains than to any other commercial service in the country—and "Sheffield" does not refer to locomotive power—and the remark "additional stops now made at Leicester and Nottingham" applies only to one Great Central train, which has had a fair extra allowance of 9 min. for these two stops, replacing a Leicester "slip." The best up Midland trains, at 8.57 and 11.6 from Sheffield (pre-war 9.2 and 11.8), have had 8 and 1 min. added to their journey time, with a new stop, at Chesterfield, in the first case only; the evening up service at 5 p.m. has become 5.35 and has been worsened by 13 min., while the 7.20 p.m. from Sheffield has disappeared; and although the popular 6 p.m. (now 6.15) from St. Pancras has the peculiar distinction of making an extra stop (at Chesterfield) in 1 min. less than its 1913-1914 schedule, a valuable evening service at 8.15 to Leicester, Nottingham, Chesterfield, and Sheffield has also vanished. Sheffield has most certainly "escaped the tide" of general improvement, as well as of acceleration.

Yours, &c.,

R. E. CHARLEWOOD

Increased Railway Charges

23, Liscombe Road,
Dunstable, Beds.
May 22

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—Some interesting observations are suggested by the railway companies' explanation of how their proposed increase of "about 5 per cent." in passenger fares would work out in practice. It appears that on fares over about 2s. 6d. the increases will be of such a small proportion as not to make much difference to passengers. But if the increase of ½d. on fares less than 1s. be considered, it will be seen that some fares would rise in a startling proportion—the humble 1½d. fare, indeed, would be increased by no less than 33⅓ per cent.

If the average increase of all fares is to be as small as 5 per cent., it would seem wiser for the companies to leave fares of a few pence untouched, since it scarcely seems possible that they can raise any more revenue by increasing them. At present, in cases where the passenger can ride by bus or tram for 1d. on a journey that costs 1½d. or 2d. by rail, the very short distance traffic by rail has become almost, but not quite, negligible. Should the present 1½d. or 2d. be increased to 2d. or 2½d., the railways may surely look forward to seeing such traffic disappear altogether.

Even in the case of the longer distances, where the proposed increases are so small as not really to matter to the passenger, one cannot help feeling that the companies are inclined to overlook the psychological effects of their action. No doubt road transport operators are already preparing to rush to press with notices announcing that "coach fares are still less than a penny a mile" and other similar efforts to save the travelling public the trouble of thinking for themselves.

Yours, &c.,

I. WATKIN

LONDON BUS TIMETABLES, COUNTRY AREA.—London Transport has issued two new bus timetables in which are grouped, as Country Area (North) or Country Area (South), all the services formerly covered by the board's separate country area guides, now discontinued. The Country Area (North) guide gives all bus, trolleybus, and tram routes in the London Transport area north of, and including Staines, Hayes (Middlesex), Harrow, Edgware, Barnet, Enfield, Loughton, Romford, and Rainham. In the Country Area (South) booklet are shown the corresponding transport facilities for the London Transport area south of, and including Gravesend, Erith, Welling, Bexleyheath, Sidcup, Chislehurst, Bromley, West Wickham, Thornton Heath, Wallington, Morden, Kingston, Hampton Court, and Chertsey. As in the revised railway timetables recently issued by the board, these guides interpret their function generously, adding much useful travel information rarely found hitherto in publications of this kind. Where several bus routes cover the same ground, the complete service is shown in summarised form, in addition to the appearance of the individual services in their own tables. The complex services to which they refer do not prevent a high standard of legibility and intelligibility being attained throughout the guides, which are produced by Index Publishers (Dunstable) Limited.

PUBLICATIONS RECEIVED

Salmon and Trout Rivers. By Jock Scott. London : London & North Eastern Railway, Marylebone Station, N.W.1. 8¾ in. × 5½ in. 156 pp. Fully illustrated, with folding maps. Paper covers. Price 1s. 0d. net.—This well-illustrated and produced fisher's guide is full of valuable information upon all the fishing rivers and lochs served by the L.N.E.R. Not only are the hotel and fishing costs, and other summarised information, embodied in a table occupying 75 pages at the end of this attractive volume, but the text contains fuller particulars upon matters such as suitable flies, and detailed descriptions of the various pools and waters of the principal rivers or lochs concerned. The habits of the fish, their average weights, their seasons, and the facilities for catching them are among the other useful items of information compiled by the author, Mr. Jock Scott, whose wide experience of English and Scotch waters has enabled him to impart so much valuable information to the fisherman-reader of this remarkable work.

Bearing Metals and Alloys. By Henry Norman Bassett. London : Edward Arnold & Co., 41 and 43, Maddox Street, W.1. 8¾ in. × 5½ in. 428 pp. Illustrated. Price 25s. net.—The author of this work is already well known to readers of THE RAILWAY GAZETTE as a contributor of articles concerning the chemical side of railway activities. He is Chief Chemist to the Egyptian State Railways, and in that capacity is well qualified to deal with the subject of bearing metals and alloys. The work now before us is fairly voluminous, and treats of a subject in which all railway mechanical engineers responsible for the design of locomotives and rolling stock, and the upkeep of machinery of many different kinds, are naturally interested. The continual progress which is being made in prime movers and machinery generally, makes the demands upon bearing metals more and more severe, and although there is a tendency to substitute ball and roller bearings in many cases, hundreds of applications exist where the less expensive plain bearing, either of white metal or bronze, is entirely satisfactory.

In reading the work, we have been impressed with the thorough manner in which the author has dealt with principles as well as practice in treating of the design of bearings of various kinds and the selection and use of the metals of which they are made. In past years research has led to a wide expansion of metallurgical knowledge, and we can learn much from this book about the constituents of the alloys used for bearings and the behaviour to be expected from the different combinations, of which there is a very great number. As the author states in his preface, research has not been confined to any one country or group of countries, but has been prosecuted energetically all over the world, with the consequence that results have been published in many different languages and many periodicals. It could not have been an easy task, therefore, to have kept in touch with all modern developments, and before a work of this kind could be undertaken a very great deal of patient diligence was required.

The work is divided into ten chapters, to which an appendix is added followed by an index of a comprehensiveness which will be appreciated by the reader. There are much statistical matter, a fair number of graphs, and some interesting half-tone reproductions showing the molecular constitution of various metals and alloys. A foreword has been written by Sir Henry Fowler, K.B.E., LL.D., D.Sc., who points out that in times past the pressure on the bearing was in some cases extremely high, as in certain locomotive big ends, whereas in much modern machinery not only have high pressures been maintained, but the speed between the bearing surfaces has materially increased ; moreover, further great advances have been made in the use of photo-micrography for ascertaining the structure of metals and alloys, and the effect of various heat treatments on them. Mr. Bassett's book remedies a deficiency by bringing together conveniently a vast amount of information on the subject which hitherto has been available only in widely separated form. The publishers have done their part very well, the paper, the binding and printing, leaving nothing to be desired.

See Canada and U.S.A.—Numerous tours in Canada and the U.S.A., including the crossing to and from British ports, are listed in this illustrated brochure from the Canadian National Railways, 17-19, Cockspur Street, S.W.1. The periods occupied by the various itineraries range from twenty-one to forty-five days (with voyage each way) —the latter being an escorted tour across Canada from Quebec to Vancouver, and back to New York. A page of illustrations in this booklet shows the types of accommodation provided in C.N.R. trans-continental trains, the caption emphasising that the rolling stock is air-conditioned. There is also an impressive view of the C.N.R. International Limited headed by a streamlined 4-8-4 locomotive.

Folding Doors and Windows.—A copiously illustrated catalogue from the Educational Supply Association Limited, 171-181, High Holborn, W.C.1, shows many types of folding doors, partitions, and windows for commercial premises. New developments are electrical winding gear for operating doors up to 40 or 50 ft. in height ; special doors for trolleybus garages, with provision for the passage of trolley poles ; and new types of movement for indoor folding partitions. Esavian doors have been adopted for hangars at important aerodromes, and their principles, on a much smaller scale, are applied with equal success to telephone kiosks and cabinets. In the range of folding windows is a type specially designed for use on board ship, and free from rattle in rough weather. Characteristics of all Esavian equipment are easy and silent working, and the minimum space requirements both for the process of folding and afterwards.

Aluminium Alloys.—We have received from the Aluminium Union Limited a booklet of tabulated particulars relating to the foundry alloys which are most in demand. In addition to the tables of average mechanical properties and other details, there is a section of general remarks regarding the characteristics and applications of the various alloys, 15 of which are comprised in the lists. There are, of course, numerous uses of aluminium in the construction of internal-combustion engines, but the adaptability of the metal to the building and fitting out of rolling stock is also apparent in the specifications.

Some Little-Known Belgian Towns. — The Belgian-Luxembourg Touring Office, 48, Place de Brouckère, Brussels, sends this profusely illustrated booklet, containing reproductions of several charming water colours, which deals with those numerous peaceful and charming little towns with their many beauty spots and items of interest, lying off the main lines and passed by an ungrateful mankind forgetful of what they gave of yore to art and industry. In the foreword M. Eric de Haulleville conjures up with a glowing pen many of the glories of the delightful places and his eulogisms are confirmed by the series of illustrations following. In the appendix is an alphabetical list of these towns and their principal features of interest.

Bakelite Progress.—The April issue of this review, published by Bakelite Limited, of 68, Victoria Street, London, S.W.1, records another important step in the applications of Bakelite, for the material is being used extensively for the insulation of electrical equipment in the new Empire flying boats. An illustration of one of these machines makes an attractive cover, and there is a special article on " Bakelite Materials in the Modern Aeroplane." As an insulator, Bakelite has the advantage of exceptionally high resistance to leakage, coupled with a rigidity and immunity from distortion caused by temperature changes which recommend its use in many circumstances where instruments require a sturdy casing which will in itself have insulating properties. Bakelite furnishing items are already well known, but it may be less generally recognised that the material was selected for numerous details of the latest type of Post Office telephone kiosk. Bakelite also plays its part in ventilating, having been used to give a more attractive housing for exhaust fans than has in the past been associated with such apparatus.

XUM

THE SCRAP HEAP

Answer to Railway Problem No. 8

201. The data can be represented thus:—

AA	Since E + G = E, G is O	33
BB		55
——	Since CGE is the sum of EE	——
EE		88
FG	and FG, it is less than	20
——		——
CGE	200. ∴ C is 1, and so on.	108
DA		93
——		——
	The resulting figures are:	
FGC		201

Railway Problem No. 9

THE FOURSOME

After a happy week spent in seeing the sights of London, four visitors from the North dined together on the train that carried them back.

Their expenditure had nearly exhausted their funds, but they found they could just manage to pay the bill if each contributed what money he had left. A put up a third of the total; B contributed 3s. 8½d.; C lacked the amount of his rightful share by 2s. 4d., and D paid 1d. more than A.

What was the amount of the bill?—*From "A Problem a Day," by R. M. Lucey. Faber & Faber. 5s. net.*

* * *

BITTER SWEET

A man stepped into a smoking compartment, settled himself in a corner, and felt for his pipe, tobacco, and matches; but his pocket contained no matches. An automatic machine caught his eye. No pennies were among the coins in his pocket. There was a florin. It was worth it. He sprang in just as the train was moving, and opened his prize—a packet of butterscotch! Scotched!

* * *

By means of the old lumbering stage-coaches the inhabitants of Glasgow formerly received the Edinburgh newspapers printed at six in the morning, in Glasgow at twelve o'clock noon. Now, by the excellent arrangements of the Post Office, and the astonishing speed of the railway compared with stage-coaches, the above papers we receive—when does the reader think?—why, at six in the afternoon! exactly six hours later than before the railway started.—*From the "Glasgow Constitutional" of March 25, 1843.*

* * *

WAGTAILS NEST IN A GOODS WAGON

When a goods wagon loaded with iron arrived at Remagen-on-Rhine recently after a several days' journey from the Sauerland district, it was found that a pair of wagtails had made their nest in it. Mrs. Wagtail had laid eggs and was discovered presiding in all the pride of possession over her prospective fledglings. The good people of Remagen saw to it that the bird mother could continue her care of her offspring undisturbed in more auspicious surroundings.

* * *

The two special French stamps issued in connection with the International Railway Congress now being held in Paris

* * *

RAILWAY JUGGLERY

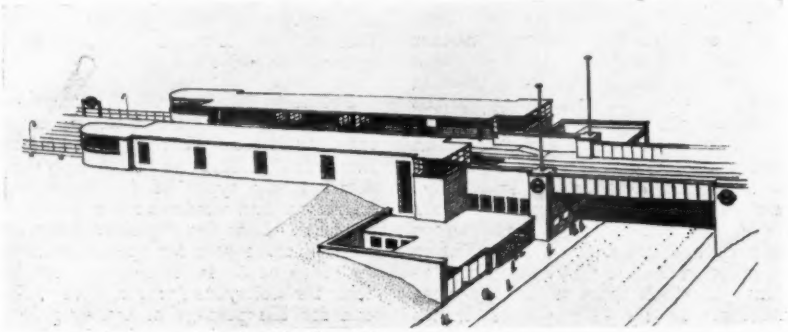
The fact that different trains follow different routes for a large part of the way between St. Pancras and the West Riding of Yorkshire gives the main line of the L.M.S.R. Midland Division a certain want of definition that is not found in the main lines of other companies. For instance, between St. Pancras and Bradford it is possible to travel via Leicester, Sheffield and Thornhill; Leicester, Sheffield and Leeds; Leicester, Staveley and Leeds; Nottingham, Sheffield and Thornhill; Nottingham, Staveley and Leeds; and Nottingham, Sheffield and Leeds. Use is also made of the loop via Chapeltown to avoid Rotherham. None of the routes mentioned above is by any means out of the ordinary, but all are followed by various expresses or portions of expresses daily.

The complexity of this system of operation is intensified to a bewildering degree however when the methods of working certain trains are considered individually. An example is the 2 p.m. from St. Pancras which is divided at Nottingham into two portions both of which proceed to Bradford, one via Sheffield, Rotherham and Thornhill *en route* to the Exchange station, and the other via Chesterfield, Staveley, Rotherham, and Leeds to Forster Square station. The most involved working however embraces the 12.42 p.m. Bristol and Bath and 12.55 p.m. St. Pancras expresses from Leeds, and the 1.28 p.m. express from Sheffield to Chesterfield which is made up of through Newcastle to Bristol and Sheffield to London coaches. The last train reaches Chesterfield at 1.50 p.m. The 12.42 from Leeds calls at Cudworth, Rotherham and Sheffield and leaves Chesterfield at 2.20 p.m. with the Newcastle to Bristol coach attached. While this train has been making laboured progress round the Sheffield loop however, the 12.55 from Leeds express has come direct via Rotherham and Staveley and reached Chesterfield ahead of it. At Chesterfield the London express divides; the first portion, with restaurant car, attaches the waiting Sheffield to London through coach and proceeds direct to St Pancras via Leicester, while the second part also goes to London but via Nottingham, having restaurant car facilities from that town, and reaching the terminus 45 minutes behind the first portion.

* * *

LE MARIAGE EN TRAMWAY

Nous connaissons déjà le mariage en voitures, en bicyclette, en automobile, en ballon, voire au téléphone. On signale maintenant le mariage en tramway. C'est de Marseille que vient l'innovation. On loue là-bas un tramway pour toute une noce. Le wattman est en gants blancs: des guirlandes de fleurs garnissent la voiture. Et comme Marseille tout entière est couverte de rails, on se promène un jour entier à travers la ville: on s'arrête de temps en temps sur les voies de garage pour se désaltérer, ou pour laisser passer le service régulier. Cela coûte 50 francs par voiture et par jour. A quand le mariage en métro?—*From the "Morning Leader" of October 6, 1905.*



Bird's-eye impression of the new brick station being built by London Transport at Ruislip Manor

OVERSEAS RAILWAY AFFAIRS

(*From our special correspondents*)

ARGENTINA

Proposed Junction of Transandine and State Railways

As part of the scheme for rebuilding the Transandine Railway, it is stated that the Government proposes to construct a line about 20 km. long to connect the Transandine terminus at Mendoza with the State Railway branch which is being constructed from Pie de Palo to Mendoza, and which will unite that city with the capital of the Province of San Juan. By this means the Argentine State Railway system will be directly connected with Santiago de Chile via San Juan and Cordoba, and from Cordoba with Buenos Aires, if the proposed purchase of the Cordoba Central Railway is approved by Congress. It is reported that work on this projected line will begin shortly, so that it may be finished by next summer, when it is proposed to begin the reconstruction of the Transandine Railway.

New Mendoza-Buenos Aires Express Service

The new B.A.P.R. express passenger service between Mendoza and Buenos Aires was inaugurated on April 17, when the first train, with a full complement of passengers, left Mendoza at 8.25 a.m., and arrived at Buenos Aires shortly before midnight, the run of 1,063 km. having been accomplished in 15 hr. 20 min.

New Air Service between Argentina and Bolivia

The Government has issued a Decree authorising the Pan-American Grace Airways Inc. to operate, from April 18, a new air service for passengers, mails, and parcels between Buenos Aires, Cordoba, Tucuman, and the Bolivian capital of La Paz, with intermediate stops at Salta, Uyuni, and Oruro. For the present the service will be weekly both ways, the flight between Buenos Aires and Salta in both directions being accomplished in the day. The approximate distances by rail of these places from Buenos Aires and the scheduled flying times and fares are as under:—

	Miles	Hr.	Min.	Fare, $ paper	
Cordoba	430	2	30	76·00	(£4 14 0)
Tucuman	717	5	30	172·00	(£10 12 10)
Salta	925	7	15	215·00	(£13 6 1)
Uyuni	1,290	10	25	314·00	(£19 8 7)
Oruro	1,485	12	40	367·00	(£22 14 2)
La Paz	1,635	14	00	403·00	(£24 18 9)

On the outward journey the planes leave Buenos Aires on Sunday at 9.30 a.m., and arrive at La Paz on Monday at 3.0 p.m. On the return journey the 'planes leave La Paz on Saturday at 9.0 a.m., and arrive at Buenos Aires on Sunday at 3.45 p.m. Ford aeroplanes, accommodating 12 passengers, will be used for the present, but will be replaced by machines of the Douglas type later. From Tucuman onwards all the points named above are situated on the Panamericano international route from Buenos Aires to La Paz, comprising the Central Argentine Railway, the North Central Argentine (State) Railway, the Villazon-Atocha Railway, and the Antofagasta & Bolivia Railway. The Panamericano express leaves Buenos Aires on Wednesday at 11.00 a.m., and arrives at La Paz on Saturday at 5.15 p.m. The first class single fare (including bed ticket) is $169·75 paper (£10 9s. 10d.).

Maize Harvest Prospects

Of the 6,494,000 hectares (16,235,000 acres) [given in our issue of May 21 as the figures of the second official estimate of the area now under maize.—Ed., *R.G.*], only some 4,830,000 hectares (12,075,000 acres) will be reaped, owing to losses caused by drought and locusts. The average yield is estimated at 1,954 kg. per hectare (2½ acres), giving a total production of 9,440,000 tons. This figure is 660,000 tons (6·5 per cent.) lower than that of last year, and 2,040,000 tons (17·8 per cent.) less than the record crop of 11,480,000 tons in 1934-35.

Argentine Fruit Exports

The Argentine fruit-growing industry is rapidly expanding, and the export of fresh fruit of many varieties promises to develop into an important item of the national export trade. According to figures issued by the Ministry of Agriculture, fruit shipments during the first quarter of the current year amounted to 19,897,675 kg., or 4,787,415 kg. (31·68 per cent.) more than last year. The countries importing Argentine fruit are, in the order of their importance, Great Britain, U.S.A., Brazil, France, Sweden, Austria, Holland, Switzerland, Belgium, Germany, South Africa, Italy, Norway, Paraguay, Egypt, Uruguay, Lithuania, Finland, and Esthonia. The weights in kg. of the various fruits exported during the period mentioned were: Pears 11,223,060, grapes 4,449,892, apples 3,394,960, peaches 405,197, plums 220,650, melons 200,794, nectarines 2,502, apricots 370, and alligator pears 250, giving a total of 19,897,675 kg. in all.

An interesting landmark in the history of Argentine fruit production was reached during the month of April, when the Argentine Fruit Distributors' Company (a subsidiary of the B.A.G.S.R.) announced that it had just packed its millionth box of fruit (containing one bushel), grown in the Rio Negro territory, where the B.A.G.S.R. has a large fruit-growing and packing establishment. The box was presented to the President of the Republic, General Agustin P. Justo, at Government House, Buenos Aires, by Mr. R. Stuart, the Chairman of the fruit company and late General Manager of the B.A.G.S.R., and Mr. G. A. Brougham, the Manager, who were accompanied by the Minister of Agriculture, Dr. Cárcano. An official of the fruit company stated that some 2,700,000 bushels of apples and pears were grown in the Rio Negro valley last year, and with normal conditions, it was hoped that next year the total output would be about 3,500,000 bushels.

SWEDEN

State Absorption of Private Railways

Three lines hitherto owned and worked by private companies are being taken over by the Swedish Government. Of these the most important is the East Central Railway, with a route mileage of a fraction over 88 miles, all built to the standard gauge and steam operated. Its main line begins at Linköping, on the electrified State main line from Stockholm to Malmö, and runs southwards for about 76¼ miles to Hultsfred, serving the provincial town of Vimmerby on the way. At Hultsfred it makes connection with the standard gauge Nässjö-Oskarshamn Railway and with the important narrow gauge Växjö-Åseda-Hultsfred Railway. The only branch of the Östra Centralbanan, as the line is called in Swedish, runs from a junction at Bjärka-Säby to Åtvidaberg, whence narrow gauge lines run northwards to Norsholm and southeastwards to Västervik on the Baltic coast.

Other privately owned narrow gauge lines come in at Vimmerby and at Hultsfred. The East Central line provides a shorter route between Stockholm and Kalmar than that served by the State Railway line to Nässjö and the Kalmar Railways beyond, but it suffers from a break of gauge at Berga, to the south of Hultsfred, on the Nässjö-Oskarshamn Railway. The respective distances are 309 miles, via Nässjö and the Kalmar Railways, and 277 miles via the East Central, Nässjö-Oskarshamn and Kalmar-Berga Railways.

Sala-Hagaström Railway

The Sala-Gysinge-Hagaström Railway, the second of those being taken over, has a route mileage of 61½, and by running powers over some 4 miles of the Gävle-Dala Railway into Gävle connects that town with Sala, on the electrified State line from Upsala to Krylbo, a link in the main line from Stockholm to the far north. Connection with the important Stockholm-Vesterås-Bergslagen Railway at Sala provides a through route from Gävle to the iron towns of central Sweden via Vesterås. The remaining line of the three, standard gauge like the others, is the Upsala-Enköping Railway, a line 27·3 miles long.

With the State absorption of the Upsala—Enköping and Sala—Gysinge

—Hagaström lines, the Stockholm—Vesterås—Bergslagen Railway remains the only private company operating standard gauge lines within the Province of Uppland, though an important 2 ft. 11 in. gauge system is operated by the Stockholm—Roslagen Railway and its dependants. State absorption in Sweden has the effect of reducing considerably the amount of rolling-stock in commission. Following widespread electrification, the State Railways have many relatively modern standard locomotives in reserve, and these can be placed in service again at the expense of non-standard types hitherto belonging to the private railways.

Government Controlling Interest in Private Railways

The administration of the State Railways is asking the Government for permission to use certain funds lying in the pension funds to obtain control over some of the private railways by the purchase of shares therein. It is intended to use such powers only when there is a prospect of improving the working of the lines to the general advantage; the actual administration will not be interfered with. Nevertheless there is no doubt that eventual complete acquisition of the lines is contemplated, and possible transfer to the State is provided for in some of the concessions now in force. Previous experience has, however, shown that the purchase of such lines is always very costly, and the present plan of acquiring a controlling interest, as has been done with some bus services, is considered to offer a more advantageous way of securing greater unification in the railway system of Sweden.

UNITED STATES

Van Sweringen "Empire" in New Hands

Controlling ownership in the Alleghany Corporation (the holding company through which the late Messrs. Van Sweringen controlled the Chesapeake & Ohio, Erie, Nickel Plate, Missouri Pacific, and several other properties) has passed into new hands, namely, Messrs. Robert R. Young and Frank K. Kolbe, New York financiers, and Allan P. Kirby, a business man of Wilkes-Barre, Pa. This controlling stock interest was acquired by George Ball, a manufacturer and philanthropist of Muncie, Ind., on the death of the Van Sweringen brothers, Mr. Ball having advanced the money to keep Van Sweringen control intact several years ago when the brothers were in financial difficulties. Mr. Ball donated the stock to a charitable trust and the latter, in turn, has sold it to Messrs. Kirby, Kolbe and Young. The new owners announce their intention of simplifying the financial superstructure which the Van Sweringen brothers built up, principally by liquidating one or two holding companies which separate the shareholders in the Alleghany Corporation from the ownership of tangible railway property. The new owners also propose to further the actual amalgamation of the Erie Railroad with the Chesapeake & Ohio.

Passenger Service Improvements

In the two years which have elapsed since the Chicago, Burlington & Quincy Railroad initiated its Zephyr streamlined train services between Chicago and St. Paul—Minneapolis, its passenger traffic on this line has more than doubled. Whereas 84 per cent. of the traffic formerly moved on night trains, now less than 30 per cent. is using the overnight services, the preponderant majority availing themselves of the fast day trains. The Daylight steam streamlined trains of the Southern Pacific between San Francisco and Los Angeles in the first 10 days of their operation with their completely new rolling stock averaged gross revenues of 19s. 5d. a mile.

The Reading Railroad has ordered a stainless steel, light-weight, streamlined train for service between New York and Philadelphia. Also the Baltimore & Ohio Railroad has placed in operation a new train, the Shenandoah, between Chicago and New York equipped with reclining chair coaches for the comfort of night travellers, and with a stewardess, who is also a registered nurse, on duty at all times to minister to the comfort of passengers. While some of the Western lines have heretofore employed stewardesses or hostesses, this is the first time that the services of the latter have been available in the Eastern region.

The spring timetables came into general effect on April 25 and, while there were accelerations here and there, none were particularly startling. The expected acceleration of the supplemental fare trains between New York and Chicago—the Pennsylvania Broadway Limited and the New York Central's Twentieth Century Limited—did not materialise with the spring schedules, but will probably come into effect when the summer timetables are brought in towards the end of June.

Burlington High-Speed Locomotive

The Chicago, Burlington & Quincy Railroad has recently completed the conversion of a standard 4-6-4 passenger locomotive into a high-speed streamliner. The locomotive, named the *Æolus*, has had a stainless steel exterior sheathing applied, and it will be used in emergencies to pull diesel-powered streamline trains in case of failure of the diesel locomotives; at other times the locomotive will be used in regular passenger service. The modifications include the fitting of a booster to the rear trailing wheels to give rapid acceleration, electro-pneumatic brake equipment to match that on the Zephyr trains, and alloy-steel reciprocating parts, reducing the weight of these parts by more than half. The reciprocating weights have also been balanced to give a dynamic augment of 7,326 lb. at 100 m.p.h., or about one-third that of the same locomotive before it was reconditioned; roller bearings are used extensively. It is expected that the locomotive will be able to maintain the 16-hr. Zephyr schedule for the 1,034 miles between Chicago and Denver without difficulty.

Railway Receipts Continue Favourable

Railway receipts for the first quarter of 1937 totalled £206,285,000, an increase of 13·6 per cent. over the first quarter last year. Operating expenses were £140,832,000, an increase of 8·5 per cent. Net railway operating income after the payment of taxes, but before interest obligations, was £29,235,000, or 40 per cent. above the first quarter of 1936. After allowance for interest on bonds, the railways as a whole are still "in the red," the deficit in the first two months of the year being £2,000,000 as compared with almost twice that sum in January and February, 1936.

BRAZIL

Central Railway

With the electrification of the suburban area of this railway it is calculated that 260 passenger coaches and a number of steam locomotives will be available for transfer to other congested stretches of line. In order to prepare the latter for their use, the Minister of Transport has requested the President of the Republic to grant a special credit of 15,000 contos. for various works. These include the widening of the gauge from Alfredo Maia to São Matheus, construction of two narrow-gauge lines between Francisco Sá and Del Castilho, and two broad-gauge lines between Honorio Gurgel and Deodoro. The narrow-gauge line between São Matheus and Pavuna will be converted to mixed-gauge, and a further narrow-gauge line will be constructed between Del Castilho and Belfort Roxo. Another line will be constructed from Heredia de Sá to the docks in Rio de Janeiro, and a bridge over the Leopoldina Railway and the Rio-Petropolis road. The plan also envisages the construction of a terminal station for the Auxiliar, Rio d'Ouro, and Therezopolis lines, as well as stations at the docks and at Ponto do Cajú. The Lauro Muller viaduct will also be widened.

Various works already under way on the stretch contemplated by the electrification scheme include: (*a*) a road overhead bridge, 400 m. long and 18 m. wide, at Maduraira station; (*b*) a passenger foot-bridge, 100 m. long by 9 m. wide, connecting the station platforms; (*c*) the reconstruction of all suburban station buildings beyond Engenho de Dentro in reinforced concrete; (*d*) the covering in of Engenho de Dentro station with a 50-m. roof span; (*e*) the construction of two viaducts, one for road traffic and for linking up also 8 platforms at Deodoro station, and another one 30 m. wide and 400 m. long with spans of 38 m.

at the Rua Marquez de Sapucahy—the spans of this viaduct will be the largest existing on the Central Railway—and finally (*f*) the work on the new Don Pedro terminal station and layout which continues day and night without interruption to train working. For these works 2,800 men have been engaged.

Following out the programme referred to in THE RAILWAY GAZETTE of February 12, the new Tourist, Agricultural and Industrial Information Department of this railway is holding a permanent exhibition of products originating in the zones served by its lines, and in response to extensive propaganda amongst industrial firms situated in the States of Minas Geraes, São Paulo, and Rio de Janeiro, many show-cases have arrived at the exhibition headquarters, in the Avenida Rio Branco, Rio, where entrance to the exhibition will be free of charge in addition to free transport. This exhibition, as well as bringing the railway into closer touch with its large number of clients, will also offer industrialists a ready means of bringing their products to the notice of foreign buyers.

Rêde de Viação Federal do Léste Brasileiro

A grant of 34,000 contos of reis has been made by the Federal Government for the purpose of re-organising this railway, which will be under the direction of Snr. Lauro Farani Pedreira de Freitas.

Viação Ferrea do Rio Grande do Sul

The State Governor of Rio Grande do Sul has signed a Decree authorising the Secretary of Finance to issue 12,000 8 per cent. stocks, of 1 conto each, at 850$000 repayable in 15 years, to meet the cost of constructing the Barreto-Gravatahy deviation on the Porto Alegre—Santa Maria line.

CHINA

Shanghai to Canton

The Ministry of Railways has notified all lines concerned to complete their preparations for the inauguration of a Shanghai-Canton through service on October 10, the time taken to be 48 hr. The lines involved are (1) the Shanghai—Hangchow—Ningpo, whose section of line over the Chieng Tang bridge is not yet open for traffic; (2) the Chekiang—Kiangsi (Provincial Railway); (3) the Nanchang-Pinghsiang line which is still under construction, and (4) the Canton-Hankow Railway.

Recently Mr. Kuck, a German schoolmaster in China, travelled through from Shanghai to Kowloon via Canton, in 70 hr. travelling time, by railway all the way except over the 280-km. section from Nanchang to Pinghsiang, which he covered by bus. He reached Hangchow in 4½ hr., Nanchang in another 22 hr., and the bus ride then took 8 hr. From Pinghsiang he travelled the 82 km. to Chuchow by a coal train. He remarked upon the comfort of the Canton-Hankow sleepers and travelling generally and also found the food on the train very good. He considered it the most interesting way of travelling between Shanghai and Kowloon, and it cost him only $43·80 fare, food and sleeping accommodation. The route passes through some of the most beautiful scenery in China.

INDIA

Madras & Southern Mahratta Railway

The works programme on the M. & S.M. Railway during 1937-38 is confined to open line works, for which an allotment of Rs. 63 lakhs has been made. The only important works are included in an ambitious scheme for the improvement of the locomotive sheds and yards on the north-east line. Otherwise, track renewals will form the major item in the year's programme.

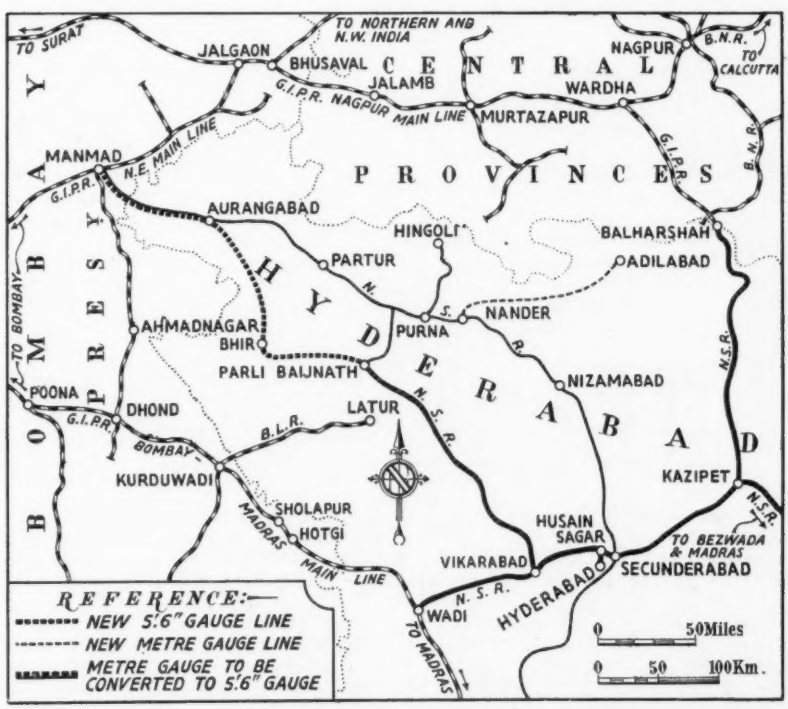
Under rolling stock, funds are provided to meet a large expenditure thrown forward from the previous year. In the new programme, it is proposed to obtain four broad gauge "XD" class engines, and 16 boilers; also 12 metre gauge boilers, in replacement of stock past the usual life limit.

New Railway Construction

An ambitious railway project, estimated to cost Rs. 2·30 crores (£1,725,000), has been sanctioned by H. E. H. the Nizam's State Railway Board. The scheme provides for the construction of a broad gauge railway from Parli-Baijnath to Aurangabad via Bhir, and the conversion of the existing metre gauge line between Aurangabad and Manmad to broad gauge. The railway will not only open up a large section of the Nizam's territory, but will also establish direct broad gauge communication via Manmad with stations in Northern India. In spite of the large outlay involved the scheme promises to be remunerative. The materials released from the Aurangabad—Manmad metre gauge railway will be utilised in the construction of another new railway from Nander to Adilabad. [These proposed extensions were referred to in an editorial on page 1008 in our issue of May 28. See also map below.—ED. *R.G.*]

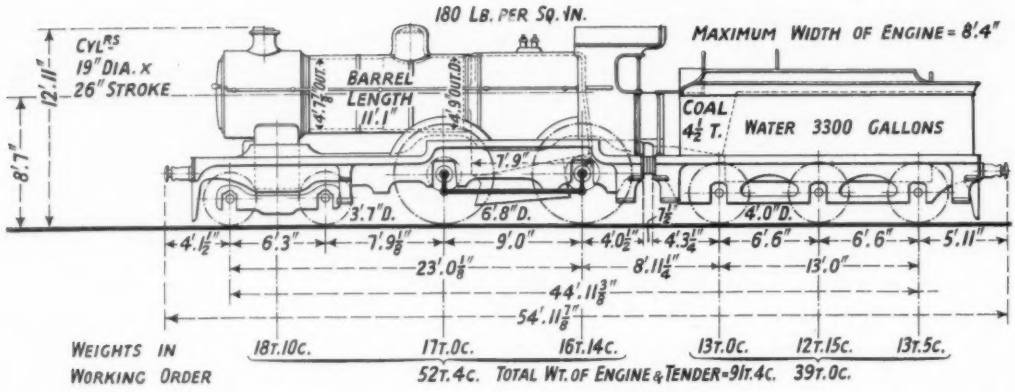
Proposed Brahmaputra Bridge

Engineering experts of the Eastern Bengal Railway are engaged in survey operations at Amingaon in connection with a proposal for the construction of a bridge over the Brahmaputra river. Though the advantages of such a bridge, as providing direct railway communication between the Eastern Bengal and the Assam-Bengal Railways in this vicinity are apparent, the actual consummation of the project must, necessarily, depend first upon the nature of the sub-soil below the river bed, and secondly, on the financial justification. The railway engineers have already completed several trial borings without finding rock, although these borings have been carried down well below the depth to which it will be necessary to sink wells for the foundations of the bridge. If no technical or financial obstacles intervene, it is proposed to build the bridge to designs similar to those of the new A.-B.R. Meghna bridge.



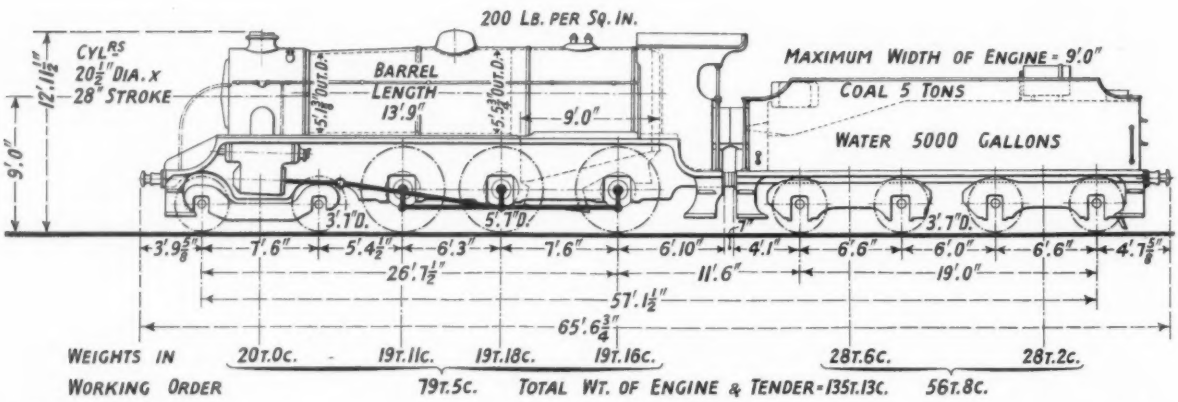
Sketch map showing proposed lines in Hyderabad State

British Locomotive Types—No. XIV


180 LB. PER SQ. IN.
MAXIMUM WIDTH OF ENGINE = 8'.4"
CYLRS 19" DIA. x 26" STROKE
BARREL LENGTH 11'.1"
COAL 4½ T.
WATER 3300 GALLONS
WEIGHTS IN WORKING ORDER
18T.10c. 17T.0c. 16T.14c. 13T.0c. 12T.15c. 13T.5c.
52T.4c. TOTAL WT. OF ENGINE & TENDER = 91T.4c. 39T.0c.

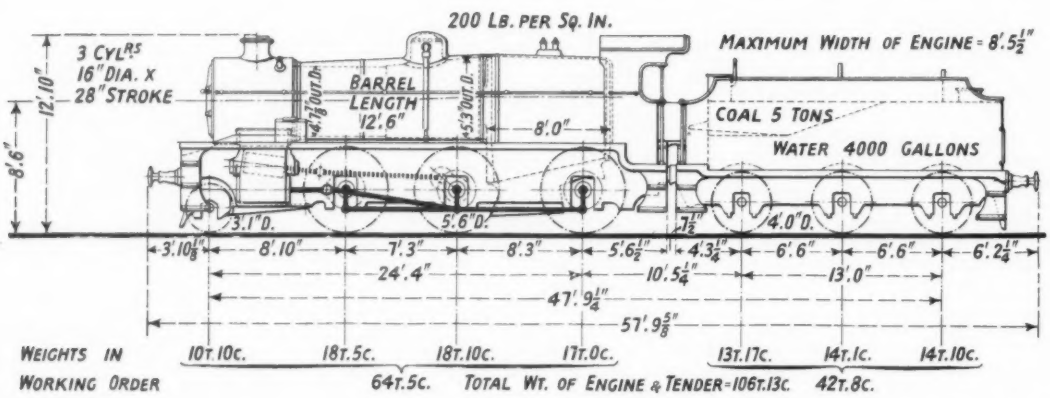
HEATING SURFACE, TUBES—		SUPERHEATER	228·00 SQ. FT.
LARGE AND SMALL	1,149·85 SQ. FT.	COMBINED HEATING SURFACES	1,504·98 ,,
FIREBOX	127·13 ,,	GRATE AREA	24·00 ,,
TOTAL (EVAPORATIVE)	1,276·98 ,,	TRACTIVE EFFORT (AT 85 PER CENT. B.P.)	17,950 LB.

D¹ Class


200 LB. PER SQ. IN.
MAXIMUM WIDTH OF ENGINE = 9'.0"
CYLRS 20½" DIA. x 28" STROKE
BARREL LENGTH 13'.9"
COAL 5 TONS
WATER 5000 GALLONS
WEIGHTS IN WORKING ORDER
20T.0c. 19T.11c. 19T.18c. 19T.16c. 28T.6c. 28T.2c.
79T.5c. TOTAL WT. OF ENGINE & TENDER = 135T.13c. 56T.8c.

HEATING SURFACE, TUBES—		SUPERHEATER	337·0 SQ. FT.
LARGE AND SMALL	1,716·0 SQ. FT.	COMBINED HEATING SURFACES	2,215·0 ,,
FIREBOX	162·0 ,,	GRATE AREA	28·0 ,,
TOTAL (EVAPORATIVE)	1,878·0 ,,	TRACTIVE EFFORT (AT 85 PER CENT. B.P.)	29,860 LB.

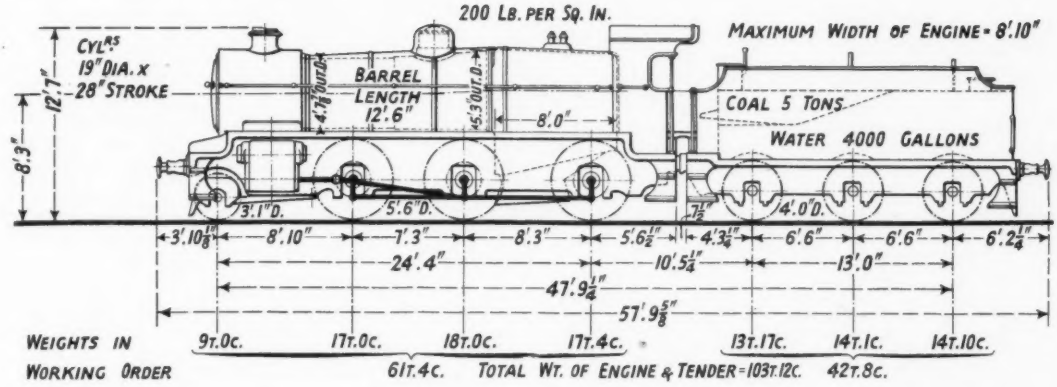
S. 15 Class


200 LB. PER SQ. IN.
MAXIMUM WIDTH OF ENGINE = 8'.5½"
3 CYLRS 16" DIA. x 28" STROKE
BARREL LENGTH 12'.6"
COAL 5 TONS
WATER 4000 GALLONS
WEIGHTS IN WORKING ORDER
10T.10c. 18T.5c. 18T.10c. 17T.0c. 13T.17c. 14T.1c. 14T.10c.
64T.5c. TOTAL WT. OF ENGINE & TENDER = 106T.13c. 42T.8c.

HEATING SURFACE, TUBES—		SUPERHEATER	285·0 SQ. FT.
LARGE AND SMALL	1,390·6 SQ. FT.	COMBINED HEATING SURFACES	1,810·6 ,,
FIREBOX	135·0 ,,	GRATE AREA	25·0 ,,
TOTAL (EVAPORATIVE)	1,525·6 ,,	TRACTIVE EFFORT (AT 85 PER CENT. B.P.)	27,700 LB.

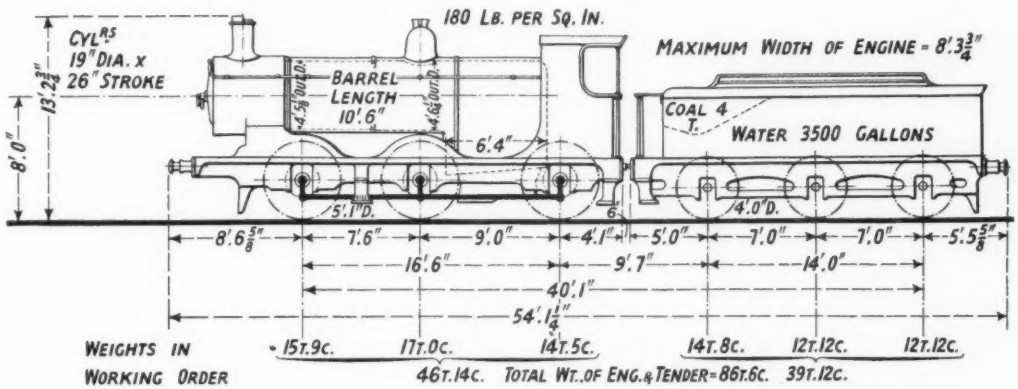
N¹ Class

Southern Railway


200 LB. PER SQ. IN.
MAXIMUM WIDTH OF ENGINE = 8'.10"
CYLRS 19" DIA. x 28" STROKE
BARREL LENGTH 12'.6"
COAL 5 TONS
WATER 4000 GALLONS
WEIGHTS IN WORKING ORDER
9T.0c. 17T.0c. 18T.0c. 17T.4c. 13T.17c. 14T.1c. 14T.10c.
61T.4c. TOTAL WT. OF ENGINE & TENDER = 103T.12c. 42T.8c.

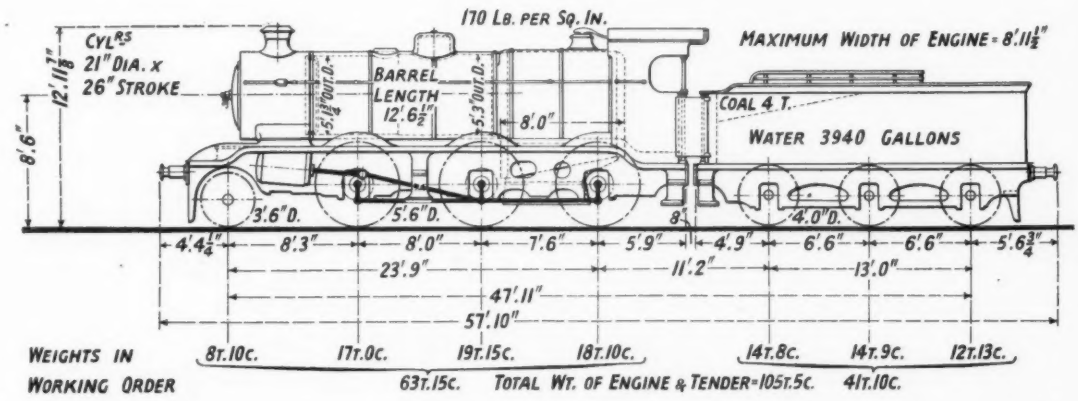
HEATING SURFACE, TUBES—		SUPERHEATER	285·0 SQ. FT.
LARGE AND SMALL	1,390·6 SQ. FT.	COMBINED HEATING SURFACES	1,810·6 ,,
FIREBOX	135·0 ,,	GRATE AREA	25·0 ,,
TOTAL (EVAPORATIVE)	1,525·6 ,,	TRACTIVE EFFORT (AT 85 PER CENT. B.P.)	26,040 LB.

N Class


180 LB. PER SQ. IN.
MAXIMUM WIDTH OF ENGINE = 8'.3¾"
CYLRS 19" DIA. x 26" STROKE
BARREL LENGTH 10'.6"
COAL 4 T.
WATER 3500 GALLONS
WEIGHTS IN WORKING ORDER
15T.9c. 17T.0c. 14T.5c. 14T.8c. 12T.12c. 12T.12c.
46T.14c. TOTAL WT. OF ENG. & TENDER = 86T.6c. 39T.12c.

HEATING SURFACE, TUBES—		SUPERHEATER	182·0 SQ. FT.
LARGE AND SMALL	859·5 SQ. FT.	COMBINED HEATING SURFACES	1,158·5 ,,
FIREBOX	117·0 ,,	GRATE AREA	20·36 ,,
TOTAL (EVAPORATIVE)	976·5 ,,	TRACTIVE EFFORT (AT 85 PER CENT. B.P.)	23,500 LB.

700 Class


170 LB. PER SQ. IN.
MAXIMUM WIDTH OF ENGINE = 8'.11½"
CYLRS 21" DIA. x 26" STROKE
BARREL LENGTH 12'.6½"
COAL 4 T.
WATER 3940 GALLONS
WEIGHTS IN WORKING ORDER
8T.10c. 17T.0c. 19T.15c. 18T.10c. 14T.8c. 14T.9c. 12T.13c.
63T.15c. TOTAL WT. OF ENGINE & TENDER = 105T.5c. 41T.10c.

HEATING SURFACE, TUBES—		SUPERHEATER	279 0 SQ. FT.
LARGE AND SMALL	1,155·0 SQ. FT.	COMBINED HEATING SURFACES	1,573 0 ,,
FIREBOX	139·0 ,,	GRATE AREA	24·8 ,,
TOTAL (EVAPORATIVE)	1,294·0 ,,	TRACTIVE EFFORT (AT 85 PER CENT. B.P.)	25,100 LB.

K Class

BRITISH RAILWAY STATISTICS

"The Railway Gazette" monthly table for Feb., 1937, as compared with Feb., 1936, compiled from the Ministry of Transport Statement No. 207

Description	Great Britain*	G.W.R.	L.N.E.R.	L.M.S.R.	S.R.
PASSENGER TRAIN TRAFFIC—					
Number of pass. journeys (ex. season ticket holders)	92,825,244	6,131,224	12,778,790	20,647,663	15,698,607
Increase (+) or decrease (−)	− 1,162,047	− 192,303	− 491,613	− 613,846	+ 242,350
Passenger receipts (excluding season ticket holders)	£3,075,791	£372,461	£594,051	£917,595	£665,808
Increase (+) or decrease (−)	+ £22,636	− £318	− £4,136	− £1,224	+ £30,800
Season ticket receipts	£719,609	£42,875	£116,904	£186,544	£234,733
Increase (+) or decrease (−)	+ £21,758	+ £543	+ £1,568	+ £230	+ £12,664
Parcels and misc. traffic receipts (excluding parcels post)	£937,303	£170,836	£282,118	£355,126	£112,476
Increase (+) or decrease (−)	+ £4,099	+ £1,042	− £12,523	+ £8,498	+ £6,670
FREIGHT TRAIN TRAFFIC—					
Freight traffic (tons) (excluding free-hauled)	23,534,593	5,489,939	10,621,807	11,203,157	1,334,241
Increase (+) or decrease (−)	+ 726,811	+ 387,379	+ 216,941	+ 287,060	− 76,794
Net ton-miles (excluding free-hauled)	1,360,454,250	250,467,513	451,645,702	566,911,968	54,534,106
Increase (+) or decrease (−)	+ 24,798,754	+ 11,664,824	+ 5,321,816	+ 10,237,458	− 1,282,601
Average length of haul (miles) (excluding free-hauled)	57·81	45·62	42·52	50·60	40·87
Increase (+) or decrease (−)	− 0·75	− 1·18	− 0·38	− 0·40	+ 1·31
Freight traffic receipts—	£7,392,352	£1,236,000	£2,450,000	£3,091,000	£379,635
Increase (+) or decrease (−)	+ £247,602	+ £60,700	+ £102,000	+ £92,000	− £9,462
Receipts per ton-mile	1·304d.	1·18d.	1·30d.	1·31d.	1·67d.
Increase (+) or decrease (−)	+ 0·020d.	—	+ 0·04d.	+ 0·02d.	—
Freight train-loads : Average train-load (tons)	131·54	135·60	136·16	130·91	104·68
Increase (+) or decrease (−)	− 0·52	+ 0·65	− 2·31	+ 0·03	− 1·43
Net ton-miles—					
Per train engine-hour	949·86	1,022·87	1,009·57	898·90	806·42
Increase (+) or decrease (−)	+ 27·82	+ 7·04	+ 1·65	+ 44·18	+ 19·21
Per shunting-hour	881·45	816·40	978·08	901·38	556·83
Per total engine-hour	457·19	454·02	496·79	450·07	329·39
Net ton-miles per route-mile per working day	2,986	2,928	3,145	3,599	1,169
Increase (+) or decrease (−)	+ 57	+ 136	+ 35	+ 81	− 35
Wagon-miles. Total	380,059,652	69,167,663	132,292,921	160,446,262	17,482,124
Increase (+) or decrease (−)	+ 5,814,046	+ 2,850,965	+ 3,534,147	+ 1,094,029	− 267,318
Percentage of loaded to total	66·59	67·32	64·34	68·23	66·02
Wagons per train. Total	34·71	34·92	35·27	34·65	31·50
Increase (+) or decrease (−)	− 0·19	+ 0·06	− 0·26	− 0·33	− 0·02
Loaded	23·11	23·51	22·69	23·64	20·80
Empty	11·60	11·41	12·58	11·01	10·70
Train-miles. Coaching—Per train-hour	15·11	14·07	14·25	14·33	17·87
Per engine-hour	12·17	11·23	11·12	11·05	14·85
Train miles. Freight—Per train-hour	8·47	9·15	8·71	7·95	9·54
Per engine-hour	3·48	3·37	3·70	3·44	3·11
Engine miles. Total	46,987,127	7,547,406	13,070,260	17,468,659	6,090,599
Increase (+) or decrease (−)	+ 483,082	+ 185,230	+ 261,859	+ 120,619	+ 12,708
Mileage run by engines. Total train-miles—					
Coaching	22,593,395	3,112,689	5,215,063	7,169,676	4,457,346
Freight	10,949,155	1,980,947	3,750,553	4,629,911	555,045
Engine-hours in traffic. Total	5,219,633	895,319	1,559,384	2,079,625	497,784
Increase (+) or decrease (−)	− 7,843	+ 23,501	+ 19,424	− 29,983	− 10,106
Shunting miles per 100 train-miles—					
Coaching	7·47	7·01	6·52	8·01	8·61
Freight	74·13	82·90	68·21	70·94	98·94

Passenger Traffic Statistics: Number of journeys, receipts, and receipts per journey (excluding season ticket holders)—February, 1937

Subject	Great Britain	G.W.R.	L.N.E.R.	L.M.S.R.	S.R.	Cheshire Lines	Liverpool Overhead	L.P.T.B.†	Mersey
Full fares—									
Pass. journeys	30,635,217	582,233	988,969	1,266,212	2,392,142	11,735	154,905	24,467,733	66,607
Gross receipts	£740,988	£53,565	£96,374	£91,821	£156,211	£1,810	£1,531	£326,131	£1,149
Receipts per pass.	5·80d.	22·08d.	23·39d.	17·40d.	15·67d.	37·02d.	2·37d.	3·20d.	4·14d.
Reduced fares—									
Excursion and week-end—									
Pass. journeys	32,687,528	3,405,462	7,473,957	11,465,768	7,092,078	367,435	64,254	1,281,644	598,658
Gross receipts	£1,665,800	£251,560	£370,484	£604,313	£361,004	£17,294	£549	£27,245	£8,599
Receipts per pass. journey	12·23d.	17·73d.	11·90d.	12·65d.	12·22d.	11·30d.	2·05d.	5·10d.	3·45d.
Workmen—									
Pass. journeys	26,370,729	1,788,705	3,506,147	7,028,746	5,605,740	246,042	215,498	6,898,450	214,124
Gross receipts	£385,584	£26,510	£57,166	£113,223	£92,862	£4,152	£1,739	£77,526	£1,896
Receipts per pass. journey	3·51d.	3·56d.	3·91d.	3·87d.	3·98d.	4·05d.	1·94d.	2·70d.	2·13d.
Other—									
Pass. journeys	3,126,848	353,786	808,841	884,541	608,075	24,756	44,662	341,299	8,738
Gross receipts	£276,805	£39,561	£68,799	£104,658	£55,223	£3,073	£285	£2,970	£152
Receipts per pass. journey	21·25d.	26·84d.	20·41d.	28·40d.	21·80d.	29·79d.	1·53d.	2·09d.	4·17d.
Total—									
Pass. journeys	92,825,244	6,131,224	12,778,790	20,647,663	15,698,607	649,998	479,319	32,989,126	888,127
Gross receipts	£3,075,791	£372,461	£594,051	£917,595	£665,808	£26,352	£4,104	£433,872	£11,796
Receipts per pass.	7·95d.	14·58d.	11·16d.	10·67d.	10·18d.	9·73d.	2·05d.	3·16d.	3·19d.

* All standard gauge railways

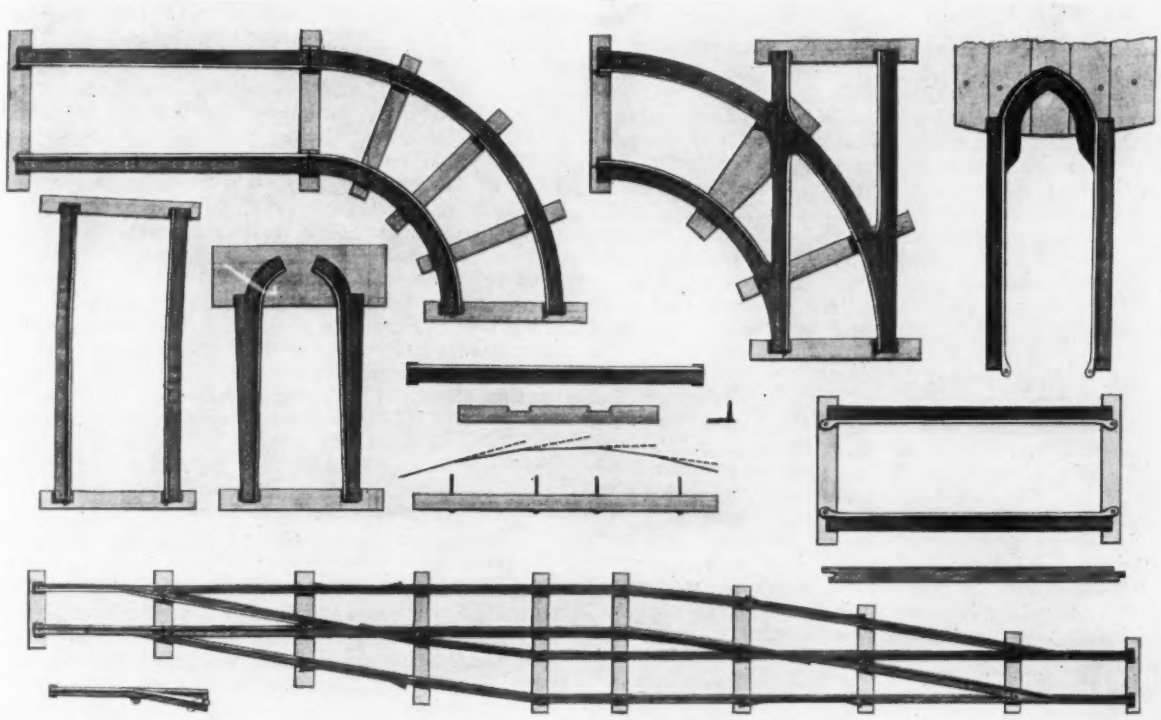
† Includes passengers originating on the railway undertakings, and on the Whitechapel and Bow Joint Railway

THE EVOLUTION OF RAILWAYS—IV

By CHARLES E. LEE

KEEPING to chronological order notice must now be made of the first railway to be sanctioned by Parliament. This was a line between Leeds and Middleton which was authorised by an Act[43] of June 9, 1758, granted to Charles Brandling, Lord of the Manor of Middleton. The line was called in the Act a "waggon-way," and was probably at first of the usual wooden kind. Later this railway came into prominence as the first to be laid with rack rails for locomotive traction. So far all the lines mentioned have been private railways dealing exclusively with the traffic and vehicles of their owners, and it seems fairly conclusive that they used flat rails—that is not flanged rails—but had vehicles with flanged wheels. This is what might be expected if it be admitted that the railway has always been a specialised form of road designed to meet the needs of the vehicle.

We now come to the period of public railways used as feeders to the extensive canal system that was developing with the beginning of the era generally termed the "industrial revolution." Neither the canals nor their feeder railways were intended for the use of their owners' vehicles; both were looked upon as public toll highways available to all comers, and it is a fact of great significance that we find at this time our first certain records of flanged tram plates. Actually the tram plate seems to have been devised for a private colliery line at Sheffield in somewhat exceptional circumstances, but its popularity was mainly with public toll railways, and, of course, the private lines and sidings running into them. The circumstances[44] of the introduction seem to have been as follow.



Cast-iron plate rails illustrated by John Curr in "The Coal Viewer." This work, published in 1797, was probably the first to give detailed illustrated instructions regarding rail laying. It will be noticed that two run-off castings are provided so that vehicles might be transferred from and to the ordinary road

During the second and third quarters of the eighteenth century increasing difficulty was experienced in transporting coal from the Duke of Norfolk's collieries to Sheffield, and in 1774 the ninth Duke of Norfolk authorised his manager, John Curr, to build a wagon-way with wooden rails from the collieries to a coal depot in Sheffield where are now Duke Street, Broad Street, and South Street. This line, about two miles long, proved very unpopular as it was thought that its object was to increase the price of coal by refusing to sell at the pit head and allow local people to arrange their own transport. Rioting resulted, and the wagon-way was burned, as well as many of its trucks. Later, it appears, this road was rebuilt with cast-

[43] An Act for establishing Agreements made between Charles Brandling, Esquire, and other Persons, Proprietors of Lands, for laying down a Waggon Way, in order for the better supplying the town and neighbourhood of Leeds, in the County of York, with Coals. 31 George II, cap. 22. Royal Assent, June 9, 1758.

[44] "The Coal Viewer, and the Engine Builder's Practical Companion" by John Curr. Printed for the author by John Northall and published at Sheffield in 1797; and "Railway Locomotion and Steam Navigation, their Principles and Practice" by John Curr (son of the above). Published in London by Williams & Co. in 1847.

iron plate rails that had side flanges to keep ordinary trucks on the rails. It is probable that these plate rails were first used by John Curr in 1776[45] for lines in the actual colliery workings and that they were adopted in the following year to re-lay the line into Sheffield. On the latter it is stated that the plates were at first laid on transverse wooden sleepers but that rioters burned these and they were then replaced with stone blocks.

It is impossible to say how far Curr had developed his ideas when this original line at Sheffield was first laid, but by 1797, when his book called " The Coal Viewer " was issued, he had certainly worked out a very complete system. A feature of particular interest was that he provided special castings as run-offs, so that trucks might be transferred with ease between the ordinary road and the plateway. The fact that Curr made special provision for such transfer shows that the plateway was designed to take ordinary road vehicles. We thus see the plateway not as a stage in the evolution of the modern railway, certainly not as the earliest form of track, and not even as a retrograde step in permanent-way construction. It was intended to provide a highway for flat-tyred vehicles that were required to make part of their journey on the ordinary road. I think we can trace the fallacy that the plate rail was an intermediate form of rail development to an assumption of Lord Armstrong in his address to the British Association in 1863. His statement that, after the introduction of iron rails, the next advance " consisted in transferring the guiding flange from the rail to the wheel," has been copied time and again ever since.

John Curr's description of his plate rails stated that they were 6 ft. long, 3 in. broad on the " trod " or tread, and ½ in. thick. The flange or angle was 2 in. high and ½ in. thick where it joined, tapering to a rounded top ⅜ in. thick. The plate had countersunk nail holes 1 in. off each end. The weight of the plate was from 47 to 50 lb. Curr's very complete specification made provision for shorter and heavier plates to carry greater weights, but these details do not concern us at the moment as they did not differ in principle from his standard method, which was doubtless based on his experience with the line at Sheffield. He recommended oak sleepers either 3 ft. 2½ in. or 3 ft. 4 in. long, 4½ or 5 in. broad, and 2½ in. thick. The plate rail was to be sunk 1 in. into the sleeper. From these dimensions it is clear that the road was quite light and must have relied to a great extent on the ballast to give it rigidity. Curr's alternative measurements were stated to have accommodated one or other of two standard types of vehicle. For one, he said, the road must be laid 22½ in. wide and for the other 24 in. wide, so as to afford about ¾ in. play for the wheels. The wheels he mentioned were of 13¼ in. diameter and 1½ in. tread.

Curr seems to have become recognised as an authority in his day on tramroad construction and similar matters, and a report survives which he made in 1793 to the Coalbrookdale Company on the subject of unloading boats on to the rail. This proves that he had business relations with the Coalbrookdale Company on the subject of transport, and it seems most likely that, on his advice, the wagon-way with its temporary flat plates of cast iron was abandoned in favour of a narrow-gauge plateway laid with angle-iron plates in the seventeen-eighties.

The construction of railways as feeders to canals may be dated from May 13, 1776, when the Trent & Mersey Canal Company secured an Act to build a railway from Froghall wharf to Caldon Low quarries. The canal (which had been authorised in 1766) was completed in 1777 and the railway opened at the same time. Recent researches[46] of Dr. J. R. Holbick show that the first line was badly laid and unsatisfactory, and that about 1780 it was replaced by a better aligned track. Very little is known of either railway, excepting the course, which still can be traced for much of the distance. Precise details of the form of permanent way and vehicles have so far eluded the present writer, but Curr in 1797 said the line was laid as a " Newcastle waggon road " with timber rails faced with 1½ in. cast-iron strips. He referred to large-capacity vehicles and said it would have been better to have used small wagons on one of his narrow-gauge plateways. A new alignment authorised by an Act of April 15, 1802, resulted in a well-constructed plateway being built by Rennie, which survived until about 1849, when a 3 ft. 6 in. gauge railway replaced it. I have mentioned this undertaking at some length for two reasons: because it was the second railway in the country to be authorised by Parliament (the first was the Leeds—Middleton line); and also in the hope that someone will be able to produce satisfactory evidence of the form and gauge of its permanent way.

The most extensive popularity of the plateway was undoubtedly in the South Wales area, where wagon-ways had scarcely penetrated. One notable exception, however, must be mentioned—namely, the " new road or waggon-way[47] to the water side " built on his estate at Neath about 1698 by Sir Humphry Mackworth in connection with his collieries and copper works. This line provides what is probably the earliest recorded example of " power " traction on rail, for Waller records[48] of Mackworth " I believe he is the first gentleman in this part of the world that hath set up sailing engines on land, driven by the wind, not for any curiosity, but for real profit." Yalden makes poetic reference to this example of the use of wind power when he says:—

> The winds thy slaves their useful succour join,
> Convey thy ore, and labour at thy mine.

Sir Humphry's wagon-way crossed the highway from Neath to Cardiff, and eventually a difference arose between him and the burgesses of Neath in this connection. In 1705 the latter succeeded (it is stated[49] by surprise) in securing a verdict from the Grand Jury at Cardiff that the wagon-way was a " nusance," and a portion of it was destroyed. In some evidence brought forward to rebut this verdict it was stated: " These waggon-ways are very common, and frequently made use of about Newcastle, and also about Broseley, Bentall, and other places, in Shropshire, and are so far from being Nusances, that they have ever been esteemed very useful to preserve the roads, which would be otherwise made very bad and deep by the carriage of coal in common waggons and carts."

It is clear that Sir Humphry's example was not followed in South Wales for T. G. Cumming tells us[50] that " as late as the year 1790 there was scarcely a single rail-way in all South Wales, whilst in the year 1812 the rail-ways, in a finished state, connected with canals, collieries, iron and copper works, &c., in the Counties of Monmouth, Glamorgan, and Carmarthen alone, extended to upwards of 150 miles in length." By 1830 the railways there totalled about 350 miles, all of which were constructed

[45] In " The Coal Viewer " published in 1797, John Curr said " The making and use of iron rail-roads were the first of my inventions, and were introduced at the Sheffield colliery, about twenty-one years ago."

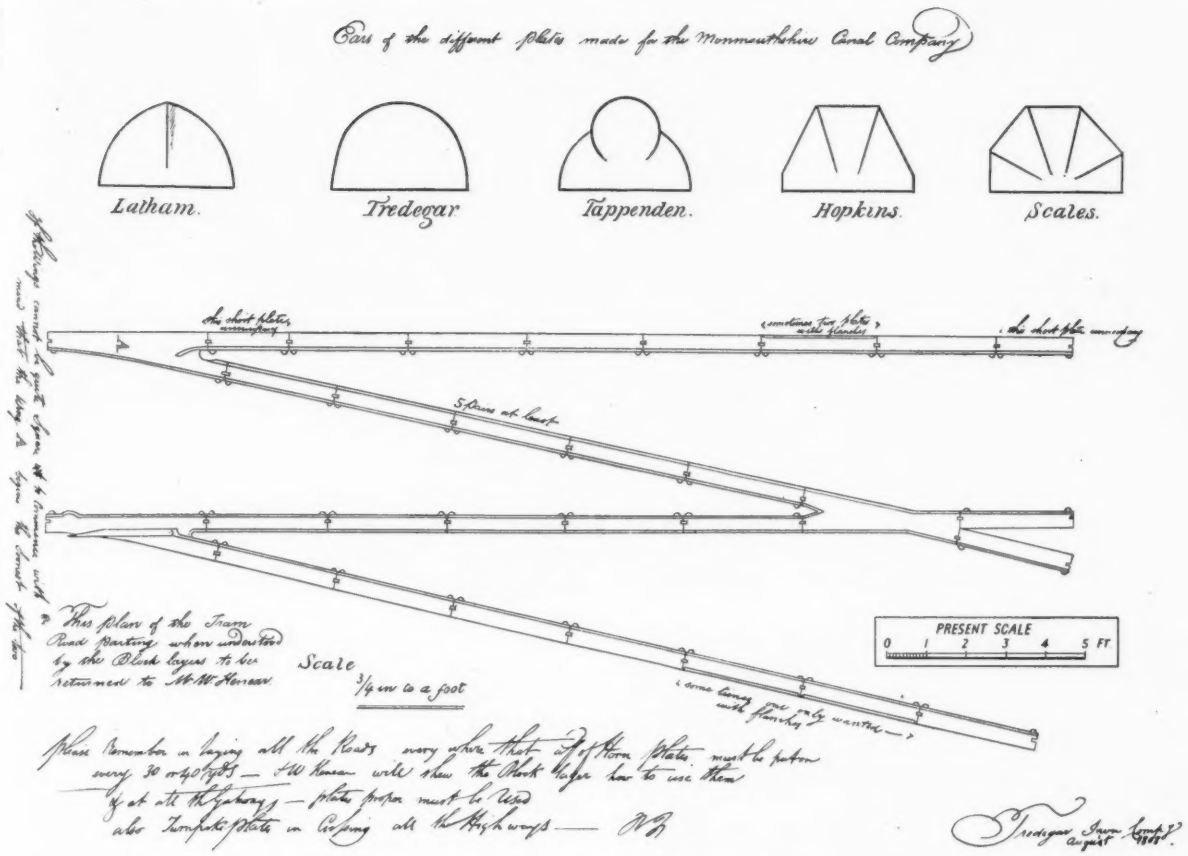
[46] See " The Railway Magazine," June, 1937.

[47] See " A Plan of the Town and Port of Neath, being part of the Estate of Sir Humphry Mackworth," by M. O'Conner, about 1705.

[48] " Essay on the Value of the Mines late of Sir Carberry Price," published in 1698.

[49] See " The Case of Sir Humphry Mackworth and of the Mine-Adventurers with respect to the irregular proceedings of several Justices of the Peace for Glamorgan and their Agents."

[50] " Origin and Progress of Rail and Tram Roads " by T. G. Cumming. The preface is dated Denbigh, November, 1824.



Plan prepared by the Tredegar Iron Company in August, 1808, of a tramroad junction for one of the Monmouthshire Canal Company's lines

on the tram-plate principle, and used stone blocks instead of wooden sleepers. The Glamorganshire Canal Act of June 9, 1790; the Monmouthshire Canal Act of June 3, 1792; the Brecknock & Abergavenny Canal Act of March 28, 1793; and subsequent canal Acts authorised the canal companies to make railways or tramways in connection with their undertakings. In the event of the canal company not exercising these powers, the adjoining landowners whose estates contained any mines of coal, ironstone, lime-stone, or other minerals, or the proprietors of any furnaces or other works lying within four miles (in some cases eight miles) of some part of the canal, were empowered to carry out the work themselves at their own cost without the consent of the owner of the lands, rivers, brooks, or watercourses it might be necessary to cross, on payment of such similar compensation as would be due in regard to the construction of canals.

These were very wide powers, and in some cases peculiar use was made of them. For example, the famous Penydarran Tramroad, on which Trevithick made his pioneer locomotive trips in February, 1804, was built about 1800 by local ironmasters under the powers of Section 57 of the Glamorganshire Canal Company's Act, which limited to four miles the distance from which works railways to the canal might be built. The line in question extended from Dowlais and Merthyr to the canal wharf at Navigation (Abercynon), which was considerably more than four miles, but the promoters of the tramroad contended that so long as their mines or works were within four miles of the canal, they had the right to lay their tramroad to whatever canal wharf they might select, and chose Navigation as the transhipment point best suited to their purposes. Mention has already been made of the fact that the word "tramroad" is not one of great antiquity; actually the first-known use of it is in the Act of incorporation of the Brecknock & Abergavenny Canal, passed in 1793.

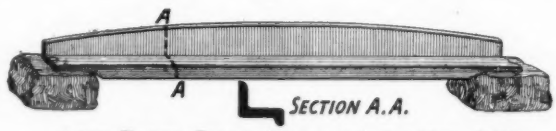
The popularity of the plateway in various parts of the country was due in part to the enthusiastic support of Benjamin Outram, who, with William Jessop, Francis Beresford, and John Wright, established the Butterley Company in 1790, and two years later built the Butterley Ironworks. The main reasons for the widespread use of plateways in South Wales, however, were the facts that the lines were laid as public toll roads by the canal companies, or else were private sidings to them; and that the early flanged wheel had not been adopted in South Wales, so that the existing stock of vehicles had flat treads. With the turn of the century, the use of tramroads spread to the Forest of Dean colliery neighbourhood, where access was desired to the Rivers Severn and Wye. Outram prepared a report[51] on the subject in 1801 in which he said: "I recommend the Rail-Way to be made substantial, upon my improved plan, with stone blocks for the rails to rest upon: the rails to be of the stoutest cast iron, one yard in length, and to weigh about 37 lb. each; the waggons to carry from 30 to 40 cwt. each . . . one horse would take six or eight of such waggons, containing ten or twelve

[51] Outram: "Report and Estimate of the Proposed Rail-Ways from the Collieries in the Forest of Dean, to the Rivers Severn and Wye." Hereford, printed by D. Walker, High Town, 1801.

Modern petrol tractor hauling wagons on an early tramroad in Shropshire, at the works of the Horsehay Company. Many of the original cast-iron rails, 4 ft. long, are still in use, but subsequently lengths of 12 ft. were rolled. Special rails for points and crossings are still, however, made in cast-iron

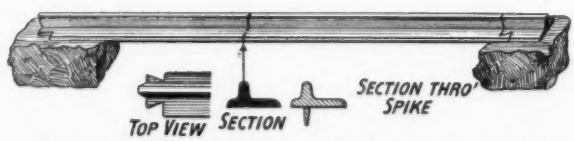
tons of coals, from the said summit (west of Surridge Hill) to the head of the Inclined Plane at Lidbrook, and return with an equal number of empty waggons, in two hours . . ." Within a few years three companies, namely the Bullo Pill Railway of 1809; the Lidney & Lydbrook Railway also of 1809; and the Monmouth Railway of 1810; covered practically the whole of the Forest of Dean area between the Rivers Severn and Wye.

The first public railway promoted independently of a canal to be sanctioned by Parliament was the Surrey Iron Railway which extended from the Thames at Wandsworth to Croydon. It received its Act of Incorporation on May 21, 1801, and was opened for traffic on July 26, 1803. An extension from Croydon to Merstham was formed as a separate company in 1803 and opened in 1805. Both lines were part of a scheme promoted in 1799 for linking London and Portsmouth by a horse tramway at a time when the military adventures of Napoleon had resulted in a great European war and exposed to considerable risk British shipping coming up the English Channel and through the Straits of Dover in order to reach London. The victory of Trafalgar in October, 1805, reduced the urgency for a strategic line of overland communication, and these railways were never carried beyond the Greystone Limeworks at Merstham. At this period the River Wandle was credited with being the busiest river of its size in Europe, but under the influence of the Industrial Revolution industries were gradually moving northward to be near the coalfields, and neither line was commercially successful. The Surrey Iron Railway appointed William Jessop as its engineer and the firm of Jessop & Outram as contractor. The line was double track and the rails were cast-iron tram plates of L section in 3 ft. 2 in. lengths, $3\frac{1}{2}$ in. wide on the tread, and $\frac{3}{4}$ in. thick.

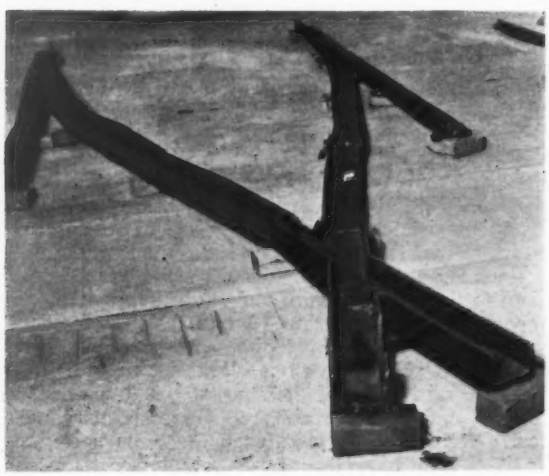


CAST TRAM RAIL SURREY IRON RLY. 1803

For a time, the success of the tram plate in the Midlands and South Wales blinded many to the inherent difference in function between plateways and railways, and a report of 1811 to the Board of Agriculture on Iron Railways in Monmouthshire said " The old rail-road is exploded, except that where the rails and waggons remain undecayed, the use of them is continued; but there are no new ones made upon that plan, a decided preference being given to the modern invention of tram-plates." However, this period was not a stage in the evolution of permanent-way, but rather, as subsequent events show, an adaptation of rail traction to meet the special needs of vehicles required for both rail and road use.



LE CANNS CAST TRAM RAIL 1808 (DOVETAIL JOINT)



Early tram plate crossing preserved in the York Railway Museum

RAILWAYS AND ROAD TRANSPORT SECTION

This section appears at four-weekly intervals

Control of Road Transport in India

ON April 9 the Indian Motor Vehicles Insurance Committee published its report, from which it appears that due to road accidents the rate of deaths per motor vehicle in India is at least 0·93 per cent., the highest in the world. The next highest was found to be the figure for Italy, 0·594, whereas the lowest is for New Zealand, 0·074. The committee recommends the immediate introduction of compulsory third-party insurance, heavy punishment for driving offences, the separation of motor insurance from other insurance in returns of companies, a separate deposit, and that all accidents must be reported. But from the railway point of view the most important sections of the report deal with the prevalent overloading of both goods and passenger vehicles, the inspection of vehicles, methods of dealing with careless drivers, and, last but not least, the conclusion arrived at that the development of public transport is proceeding on altogether wrong lines. The casual one-man-one-bus system has frequently proved to be the source of accidents, and should be replaced by regular services, with definite routes, time schedules, and fares. The single-vehicle owner is not barred from this category, but he should join a pool such as exists already in certain areas in India. Development on these lines is an urgent need, the committee considers, and its recommendations should prove a powerful weapon in the hands not only of the railways but of all organised road transport in India, in their fight to get the Provincial Governments to take adequate steps to ensure thorough regulation, control, and co-ordination of all forms of transport.

Portable Petrol Filling Station

FOR railway or road construction in areas remote from petrol supply centres, the constant supply of petrol for air-compressors, lorry transport, lighting equipment, and many other purposes is often difficult. Consequently a travelling filling station has been devised and fitted out in the United States. It consists of a rake of four railway vehicles: two 12,000-gal. tank wagons; a platform truck carrying a tank-lorry, pumping plant, rails, sleepers, and a portable loading ramp; and a covered wagon fitted as a combined office and warehouse. This rake is run out by rail to the farthest practicable point, and there the permanent way materials are unloaded and laid—presumably by breaking the running line temporarily and closing it up again after the siding is laid—as a temporary siding, on to which the rake is shunted. The tank-lorry can then be unloaded on the portable ramp, and run out daily with supplies of petrol from the rail tank-wagons over a large area beyond railhead.

Railways and Municipal Transport

WHEN Sir Josiah Stamp opened the new bus and tram depot of Leeds Corporation Transport Department on April 8, he took the opportunity to express both his personal views, and also the official railway attitude, concerning urban municipal transport. He was not one of those, said Sir Josiah, who thought municipalities or governments should do everything that was required in public life; there were some things which were better left to private enterprise. He was quite sure, however, that experience was making it abundantly clear that the best conditions were obtainable where passenger transport in city areas was in municipal hands and where any necessary outlying routes beyond the city boundaries were properly co-ordinated with other authorities, including the railway companies. He assured his audience that the main-line railway companies had no desire to be particularly interested in the internal services of a city beyond the position of their stations and the co-ordination of train times. So far as the wider ranges of transport were concerned, some of the railway experiments in joint ownership with cities had been among the happiest and most successful developments out of what seemed ten years ago to be a hopelessly tangled situation. Sometimes those solutions were on a territorial basis, sometimes in joint working with municipalities by functional arrangements. "I want you to believe," continued Sir Josiah, "that my coming here is not a mere act of friendship, but a sign also that the railways are not hostile at all to any road developments that are made in the light of transport

Rake of four railway vehicles constituting a portable petrol-filling station which has proved a valuable adjunct to road construction in areas of the United States remote from petrol supply centres

interests as a whole. . . . It is only on the basis of confining ourselves as a community to the use of the assets of which there is an economic return over-all that in the long run the community can really be benefited. That is one of the reasons why the railway companies will rejoice in every development you make in your city enterprise in transport. We know that we cannot have the best of two worlds at the price of one."

The London Bus Strike

ON Friday last, May 28, the London bus strike came to an end after lasting almost a month. So much happened during that period and in the days which immediately preceded the stoppage, and the dispute produced so much comment, so many conflicting considerations, and such diverse cross currents of thought and opinion, that it may not now be amiss to offer a few general reflections. It may be held in some quarters that after direct negotiations between the parties had broken down a strike became inevitable. This is not wholly true, but it has to be remembered that for many months past, at particular garages, there were frequent minor stoppages, this being the method chosen by extremists to protest against new duty schedules which certain of the men concerned believed would react onerously upon them. From some quarters fulsome bursts of indignation have been directed against the suggestion that the men deliberately chose to withdraw their labour on the eve of the Coronation Celebrations because they believed that to be the most favourable time at which to achieve their purpose. Whether that was so or not, it cannot now be doubted that the time proved to be ill-chosen and actually lost the men some of the sympathy which otherwise a generous, and not always discerning, public would have offered.

The wise and timely interventions of the Ministry of Labour and the strenuous efforts of Mr. F. W. Leggett were unfortunately not successful in averting the threatened stoppage, but the Minister's dramatic action in appointing a Court of Inquiry and the speed and acumen with which the Court produced an interim report only three hours after the formal hearing concluded on May 6, were certainly appreciated by the parties and by the general public. In plain language the issues involved were stated, and in equally plain language the Court expressed its view that the case for a 7½-hour working day for all busmen had not been established. Two days later a generous offer by the London Passenger Transport Board followed. While standing firm in rejecting the demand for a 7½-hour working day, the board intimated its preparedness to make many concessions, but on May 10 a delegate conference of the union almost unanimously rejected the offer and decided to continue the strike. It is now known that the executive council of the union, after a careful analysis, regarded the offer as a "75 to 80 per cent. victory, together with the possibility of obtaining better results from the investigation having regard to the claims of the members as to the effect of the industry on their health."

There is no doubt that the Central Bus Committee would have been well advised to have grasped the olive branch at that time instead of pursuing a war of attrition and of seeking to secure its aims by bringing into the dispute the tram and trolleybusmen who had no direct part in the busmen's troubles. Fortunately, good sense prevailed among other sections of the board's employees and on May 25 the executive council of the union, rightly adjudging that by its persistent militant attitude the Central Bus Committee had "missed the bus," decided to take control of the dispute. Within 24 hours of this decision a settlement was announced. While it seems a pity that the decision was not taken earlier, the fact that the executive council did succeed in asserting itself indicates the ultimate triumph of sane leadership against an extremist caucas intent only on its own gains, regardless of the public weal.

Now, as to the terms of settlement, the union did well to secure the consent of the board to the reinstatement, without break of service, of all men who reported for duty on Friday, May 28. In making this concession the board showed an attitude of generosity not incompatible with its dignity and position. Another important feature was the acceptance by both the board and the union of the interim findings of the Court of Inquiry. It is upon the basis of these findings that the parties will endeavour to build a permanent peace. The establishment of machinery of negotiation to deal with local difficulties and with major issues as they arise is a reform long overdue. In other realms of industry, especially in other branches of transport operation and notably on the main-line railways, employers and employees alike have proved the value of effective machinery for the discussion and disposal of those difficulties which inevitably arise from time to time. The provision, by agreement, of an avenue into which important disputes can be directed for solution by impartial and independent authority should avoid another unfortunate occurrence such as we have just witnessed.

The strike weapon is at all times a dangerous one and not least to those who wield it. Of a truth it woundeth him that strikes as well as him who is struck. If proof be needed, it is recorded that the L.P.T.B. lost £600,000 in bus receipts; the men forfeited £460,000 in wages; and the union paid out £120,000 in strike pay. In conclusion, we feel that perhaps the most disturbing feature of the whole affair was the fact that for 27 days working Londoners, not to mention the host of Coronation visitors from the provinces and overseas, were deprived of services which they had the right to expect. We can only hope that the efforts of the L.P.T.B. and of the Transport and General Workers' Union to make a new agreement will be successful, and that from the losses and inconveniences of the past month will arise a new, better, and lasting understanding.

Publications Received

Elsner's Taschenbuch für den Reichsbahn-Kraftverkehr (Elsner's Pocket Book for the German State Railway Motor Services). Berlin, S.42. 1937.: Otto Elsner Verlagsgesellschaft. 398 pp. 4 in. × 6¼ in. 145 figures, also engineering tables, specimen official forms, specifications, &c. Price 3·50 RM.—During the last few years, both on road and rail, the German State Railway has greatly extended the use of internal-combustion vehicles, and in some directions has carried out valuable pioneer work of lasting importance; it is not surprising, therefore, that the contents of this well-produced volume are of great interest. Contrary to what might be inferred from the title, a considerable part deals with railed motor vehicles. After a short introduction setting forth the principles of design, the principal types of motorbus, coach, and lorry now in use in the Reichsbahn road services are described and illustrated. Official regulations and specifications covering design and construction are given. A section on maintenance follows, with diagrams of important measurements to be observed in testing and inspecting. An interesting table is that giving characteristics of the various makes of diesel engine in use at the present time.

The volume is an excellent reference book and affords eloquent testimony to the amount of skill and attention which the Reichsbahn, with the aid, of course, of several well-known private concerns, has devoted to the perfecting of internal-combustion traction.

Conveyance of Livestock in the Irish Free State

Close co-ordination between the road and rail services of the Great Southern Railways has resulted in the expeditious handling of an important traffic

THE Great Southern Railways Company derives an income of about £300,000 per annum from the conveyance of the various classes of livestock. The traffic consists of store cattle and other classes of animals being brought to fairs; stock for markets in the cities or for home consumption; livestock sent to richer pasture lands for fattening; and that sent for shipment to Great Britain. A large proportion of the stock carried is for shipment and usually originates at the stations adjacent to the fairs which are held throughout the country, but in many cases the fairs are held at places as many as 40 miles distant from the railhead.

The buyers are met beforehand by the company's canvassers and their requirements ascertained. They are then advised the time the special train must leave the railhead station in order to connect with the boat sailing the same evening. The number of livestock wagons to be supplied to each fair is based on the output for the preceding years, and an account is, of course, taken of the trend of this traffic at the time at which each fair is held. The special trains for shipment have precedence over all but passenger trains, and, providing the stock is brought to the station by the time announced for starting, it is a very rare occurrence to arrive late for shipping by the evening sailings.

It has, however, sometimes occurred that from outlying fairs the difficulty of driving the livestock to the station in time to enable the special train for shipment to start at its schedule time has resulted in a late despatch and the stock was therefore not shipped on the evening of the fair. This difficulty is now being overcome by provision of motor vehicles sent by the company to convey the stock from the distant fair greens to the railway in order to ensure despatch by the shipping special the same evening; this programme is being extended at the present time. For instance, Ballygar is about ten miles from Roscommon. The stock from the fair, which was held on March 18 and had never previously been shipped on the day of the fair, was brought by lorries to Roscommon station. A special train left at 11.30 a.m. and reached Dublin, 100 miles distant, in time for shipping by the evening sailing.

A glance at the railway map of Ireland will show how many of the fairs are held at places considerable distances from the railway. Co-ordination of the company's road and rail services has thus greatly improved the transit from the fair to the steamer, and has enabled the railway company to retain this rail traffic which might otherwise be carried by road direct. Livestock for shipment must be detained at the Free State ports two hours before being loaded on the steamers, to allow for veterinary inspection and rest, and the time taken for the inland transport must be curtailed accordingly, if the traffic is to connect with the steamers sailing on the same evening.

While the provision of road vehicles to outlying fairs has enabled the company to secure traffic which might otherwise be carried by direct road services, it entails a considerable amount of ingenuity and foresight to perform the road work economically. A fleet of road vehicles is not provided solely for this traffic, but by the temporary withdrawal from different depots of vehicles which are used normally for railhead goods delivery, the requirements are met. On the morning of a fair lorries are sent to the place where the fair is held, and make as many trips as required between the fair green and station.

One of Pickfords power cranes working at the Bath and West Show, Trowbridge. This crane is also booked at the Royal Agricultural Show, Wrottesley Park, Tettenhall

The Nizam's Road Services

ON a number of occasions we have referred to the policy of H.E.H. the Nizam's Government in operating its own road services under the control of the Nizam's State Railway Administration, and as recently as March 12 last we published a short illustrated résumé of recent developments. Through the courtesy of the Agent, Mr. E. W. Slaughter, we are now able to supplement this from the details contained in a preliminary review of transport matters in Hyderabad State for the year ended March 31, 1937, which has been prepared pending the issue of the usual accounts and statistics. During the past year, road transport (which was formerly controlled by the Chief Commercial Manager) has been made an independent department under the Agency. The Commercial Department, however, deals with co-ordination of road and rail matters, publicity, and so forth, in accordance with the new policy of the Nizam's State Railway in segregating the functions of the Commercial and Transportation Departments so that the former deals only with purely commercial matters.

As we have remarked on more than one occasion, it is intended that the passenger road services of the Nizam's State Railway shall eventually replace all private services, except those in Hyderabad City. During the year under review this policy has resulted in road services on more than 2,600 miles of road being taken over by the State from private agencies which formerly operated under monopolies. This has increased from 1,350 to 4,000 the mileage of roads on which the State-owned services run. The number of passenger buses has been increased from 130 to 271, and the total of passengers carried from 7 millions in 1935-36 to 11 millions in 1936-37. A start has been made with goods services by the provision of 25 lorries with 8 trailers working from nine out-agencies, seven of which are new.

New passenger vehicles supplied during the year are Albion chassis carrying metal bodies and propelled by Dorman and Gardner diesel engines. They are of two types, one with 27 and the other with 19 seats, and are used as required to suit the traffic available on the roads in various districts. The chassis and bodies were imported separately (the bodies in sections) and were assembled by the road transport staff in Hyderabad. The extension of the services involved building a new workshop at Aurangabad and 14 new depots with garages and facilities for minor repairs. As the new services were required in replacement of private services and as monopolies expired on specified dates, it was necessary for the depot construction and assembly of vehicles to be carried out to a carefully thought-out programme which was adhered to without a hitch.

Fares, which are constant all over the State except in Hyderabad City, are O. S. pies 6 equivalent to Bts. pies 5·1. In Hyderabad City fares are somewhat less. With these fares, which are in many cases less than those charged by private enterprise, and which are charged on some routes for development purposes though services are actually run at a loss, it has been possible to obtain a substantial profit. Actually this amounts to a little more than Rs. 2 lakhs after having made adequate provision for depreciation; having allowed 4 per cent. for interest on capital; and having paid taxation in accordance with the new State rules. The State policy has thus justified itself in practice. It is remarked in the review from which we extract these details that the fares charged are reasonable; services are comfortable, safe, and regular; and the results are achieved on sound commercial principles. Surplus earnings go to the general revenues of the State.

Co-ordination of Rail and Road Services

Co-ordination achieved during the year between H.E.H.'s road and railway services is indicated by the following details. Some 195 connections are made daily between passenger trains on the railway and buses on the road. To enable the public to make use of the co-ordination achieved comprehensive maps and timetables have been distributed. The maps—one of which is for the whole of the State and the other for the Hyderabad City and suburban area—show all routes, and the individual services (which total 126) are indicated by numbers. The timetables have corresponding numbers for the services and thus the details of any journey by road and rail where State services operate can be timed in advance.

Train service timings have been revised and speeded up by eliminating stops and using buses to feed the intermediate stations. This has enabled considerable improvement in train timings, between Hyderabad and Kazipet, Hyderabad and Bhongir, and Secunderabad and Bidar without sacrificing the interests of short-distance passengers, who are picked up closer to their homes than they were before and transported to stations by bus. The result in all cases has been an increase in railway passenger traffic, which on the Bidar service amounted to well over 100 per cent. as compared with the figures of the previous year, while there was no increase in passenger traffic on the system as a whole.

Combined road and rail excursions have been introduced, and parties have been taken to Ajanta, Ellora, Nizamsagar, Ramappa, and the Bidar areas. Over 2,200 passengers took advantage of the special terms offered for these excursions which were run as conducted tours. The Ajanta and Ellora excursions involved a rail journey of 640 miles and a road journey of some 200 miles. Special suitable arrangements were made for meals and the price of the third class tickets was only Rs. 11 for adults and Rs. 8-7-0 for children, which included meals and sleeping accommodation.

Local collection and delivery services have been introduced by providing road vehicles serving an area of 40 square miles at Hyderabad and Secunderabad and 60 square miles at Warangal. These services are " door to door " that is all descriptions of traffic whether in bulk or not are collected from consignors and delivered to consignees at any place in these areas accessible to motor vehicles. Seven new out-agencies have been opened at the following important places in the Dominions—Adilabad, Armoor, Bhir, Karimnagar, Nalgonda, Suryapet, and Nirmal. From these out-agencies traffic can be booked direct to any other out-agency or to any station in India, and merchants receive railway receipts at the time of booking at the out-agency.

Plans are under preparation for a hotel at Aurangabad which will cater for tourists visiting Ellora and Ajanta and will be served by rail and road and later possibly by air. A recent example of the flexibility of the State road transport organisation was provided when it was found possible to put 35 buses on the road in Secunderabad and Hyderabad to counter the public inconvenience which resulted from a sudden strike of bus and taxi owners, who chose this method of objecting to the new rules for taxation of motor vehicles introduced both in Hyderabad territory and in the British administered areas.

Swansea and District Transport

In Swansea diesel-engined buses are replacing the remaining trams on June 29. The South Wales Transport Co. Ltd. and its subsidiary serve an important industrial area

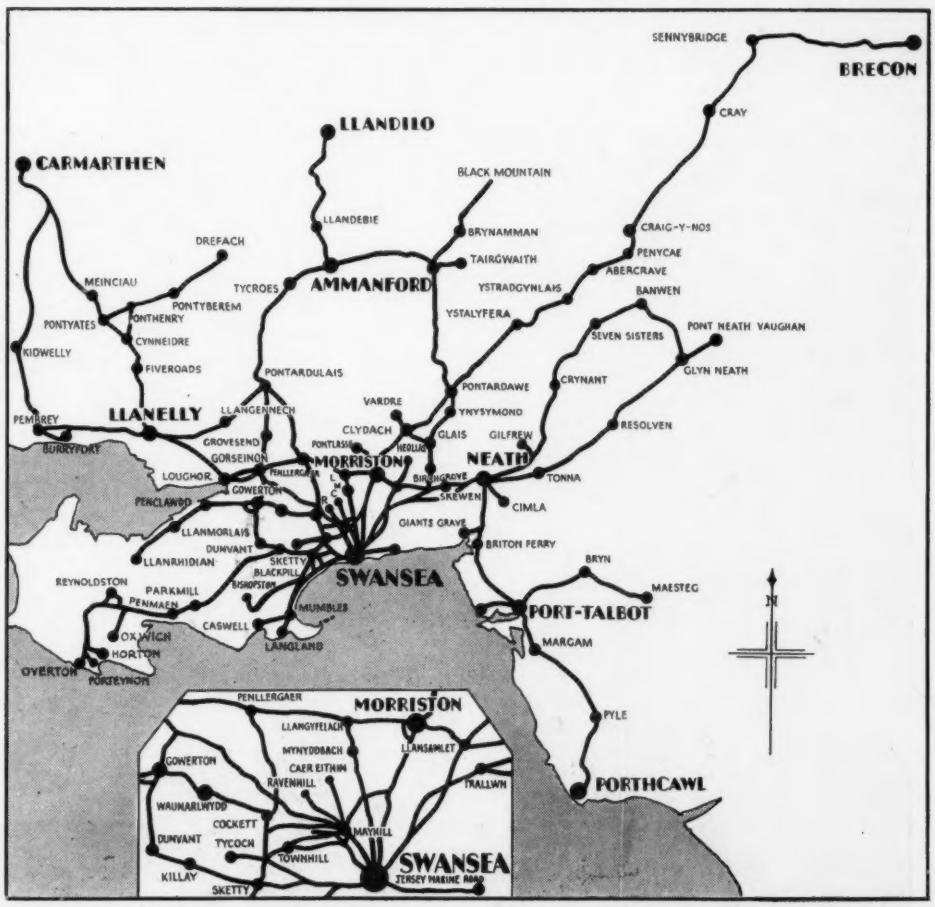
PASSENGER road transport in the immediate neighbourhood of Swansea is in the hands of the South Wales Transport Co. Ltd. and its subsidiary, the Swansea Improvements & Tramways Company. The former company also works an extensive system of motorbus services linking up the towns and villages within a radius of 25 miles of Swansea, as shown on the accompanying sketch map. The undertaking occupies a peculiar position in relation to the main-line railways, for, unlike most other large companies, none of its issued share capital is in railway ownership. At the same time, the South Wales Transport Company is a member of the British Electric Traction group; has close working agreements with its neighbours—including the railway-associated Western Welsh Omnibus Co. Ltd.; and itself leases and works the small but interesting Swansea & Mumbles Railway, which was incorporated as long ago as June 29, 1804.

The nucleus of the present business is to be found in the Swansea Improvements & Tramways Company, formed by an Act of July 16, 1874, to build a system of horse tramways and to carry out street improvements. Further powers were obtained under Acts of 1878, 1879, and 1882, and during the horse era a system totalling 5½ route miles of 4 ft. 8½ in. gauge track was built. In 1898, the British Electric Traction Company bought nearly the whole of the issued share capital of the company with the object of electrifying the tramways, powers for which purpose had been secured in 1897. Electric working was inaugurated on June 30, 1900. The Swansea Corporation then secured in 1902 both an Act of Parliament and a Light Railway Order authorising the construction of a number of additional lines which were to be leased to the company. On April 22, 1905, six route miles were opened, and the Port Tennant section of one mile (completing the authorised Swansea Corporation lines) was brought into service on August 19, 1905. The Glamorgan County Council, in 1903, secured a light Railway Order for further lines in the Morriston and Pontardawe districts, but only three-quarters of a mile, from Morriston to Ynysforgan, was built. This was opened on October 19, 1908, and also worked by the Swansea Improvements & Tramways Company; ownership was acquired by Swansea Corporation in 1918. Three short extensions were built by the Swansea Corporation and opened in October, 1913, linking up various sections of the system; the tramway route mileage was thus brought up to 13.

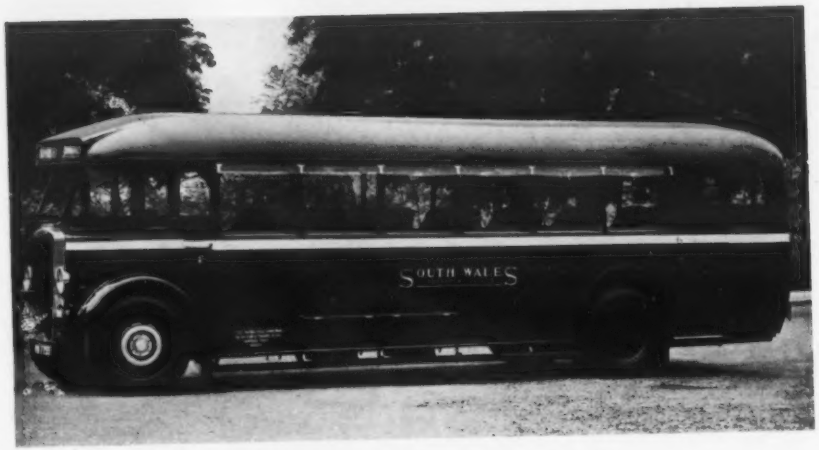
Motorbuses Introduced

In the meantime, the B.E.T. had decided to establish motorbus services in the area (as in many other parts of the country where its associated tramways were working) and on February 10, 1914, the South Wales Transport Co. Ltd. was formed to carry out this object. Its first motor services were established on May 2, 1914, but development was retarded by the war. When hostilities were over, the fleet was progressively augmented and new routes were opened, so that by the end of 1924, 114 motor vehicles were in service. Four years later the total had grown to 166, and this remained the approximate strength of the fleet until a policy of tramway abandonment was taken in hand.

The hilly nature of the roads in the South Wales valleys is too well known to require emphasis, but one route in



The bus routes of the South Wales Transport Co. Ltd.

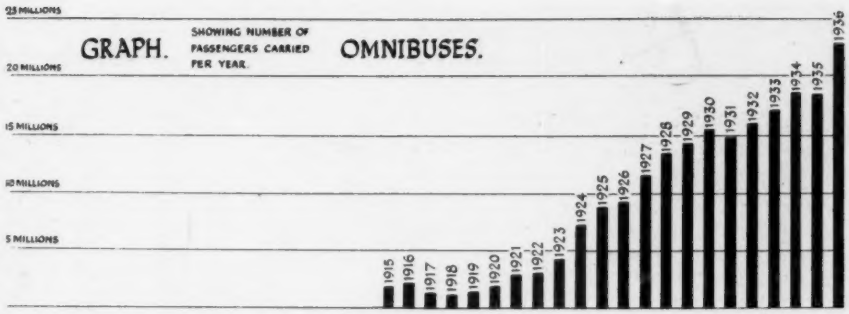


Weymann-bodied Leyland single-deck bus

Offside view of Q-type A.E.C. showing position of engine-ventilation louvre

Double-deck A.E.C. bus as used by the South Wales Transport Co. Ltd. on heavy traffic routes

Diesel-engined A.E.C. bus adopted by the Swansea Improvements & Tramways Company for tramway replacement



the heart of Swansea is deserving of special mention by reason of the exceptional operating problem which it presents. This is the approach to Town Hill, an area of about 600 acres situated at an altitude of 570 feet above sea level and approached by a steeply-graded road which in two parts is as severe as 1 in 5. In 1898 a half-mile inclined tramway had been built, but failed financially after a life of three years. Shortly before the war Swansea Corporation considered building a light railway along a more circuitous route, but the eventual solution was found in April, 1926, when the South Wales Transport Company introduced a fleet of six 32-seat single-deck Alpine-type Saurer buses that maintained a frequent service, successfully negotiating the " cliffside " approach to Town Hill in second gear. More recently 130 h.p. diesel-engined A.E.C. buses have been added to the fleet. These are 40-seat six-wheeled vehicles and are fitted with fluid fly-wheels and epicyclic gearboxes.

Since the establishment of the Area Traffic Commissioners under the Road Traffic Act, 1930, the more destructive features of competition between rival operators have been eliminated, and nowhere has this been more marked than in South Wales. There the licensing authorities have consistently required the introduction of co-ordinated timetables, uniform fares, and often interchangeability of return tickets. One result of this policy has been that the South Wales Transport Company has not found it necessary to buy up a large number of independent competing businesses at inflated prices. During the past ten years, however, certain undertakings have been acquired when there was an opportunity of effecting operating economies. The chief purchases have been as follow:—

Owner	Date of purchase
Albert Thomas (Llandilo and Ammanford)	December 1, 1927.
Bishopston & Murton Motor Services Limited	July 6, 1928.
Gwendraeth Transport Co. Ltd.	May 29, 1935.
J. M. Bacus & Co. (Burry Port)	May 29, 1935.
Willmore Motors of J. H. Williams (Neath and Margam)	November 6, 1935.
Johns Motor Transport Company	May 28, 1936.
Treharne Bros. (Ponthenry)	May 28, 1936.
Osborne Bus Services of Thomas Davies	April 13, 1937.

After many years of discussion it was eventually decided to electrify the Swansea & Mumbles Railway, a steam-operated line leased by the Swansea Improvements & Tramways Company from July 1, 1899, and, in order to facilitate close co-operation between the electrified railway and the local bus service, the lease was transferred to the South Wales Transport Co. Ltd. by agreement dated July 5, 1927. Public electric traction was begun on the Swansea & Mumbles Railway on March 2, 1929.

In 1930 the South Wales Transport Company acquired from the B.E.T. and other shareholders £178,810 out of the total issued capital of £180,000 of the Swansea Improvements & Tramways Company and thus paved the way for a complete scheme of reorganisation of the local passenger road transport, including the abandonment of the tramways. Lengthy negotiations with the Swansea Corporation followed and eventually a comprehensive agreement was concluded on February 28, 1936, and the whole arrangement sanctioned by the Swansea & District Transport Act of May 29, 1936. The main features of the arrangement are that the tramways are to be abandoned and replaced by buses; that the Swansea Corporation assists in financing the change-over by lending the company £100,000, repayable by annual instalments of £5,000; that the present rental of £7,771 continues to be paid to the Corporation until 1942; and that from 1943 onwards profits will be shared between the company and the corporation, the corporation receiving a quarter of the profits earned in the borough with a minimum of £5,000 per annum until 1957. Actually the first section of the Swansea tramways to be abandoned was that between Morriston and Ynysforgan, on which traffic was discontinued on June 12, 1933. The remaining lines have survived until the present year and their services are being replaced by buses under the terms of the agreement just mentioned. On March 7 last four routes were abandoned, namely, Morriston, Brynhyfryd, Cwmbwrla, and St. Helens. The remainder of the system is to be replaced by diesel-engined buses on June 29.

40-seat Park Royal body on A.E.C. Renown chassis, as used on the steeply-graded Town Hill service at Swansea

When the programme of tramway replacement was taken in hand, the bus fleet totalled 172 vehicles, of which 122 were single deck and 50 were double deck. Some 62 A.E.C. Regals have recently been secured to replace the trams and the present fleet now numbers 234, exclusive of 12 Regals at present on order. Apart from Swansea, the company maintains garages at Neath (for 24 buses), Llaneily (22), and Pontardawe (18), and a few vehicles are garaged in dormy sheds at strategic points for opening routes in the morning. Most of the fleet is located in

Double-deck A.E.C. bus as used by the South Wales Transport Co. Ltd. on heavy traffic routes

Diesel-engined A.E.C. bus adopted by the Swansea Improvements & Tramways Company for tramway replacement

Above: General view of the new Ravenhill garage of the South Wales Transport Co. Ltd.

Left: Buses on repair pits, showing main well at pit-floor level equipped with work bench

Below: General interior view of Ravenhill garage illuminated by Osira electric discharge lighting

Swansea, where the main garage and overhaul works in Brunswick Street until recently constituted the largest depot. Those premises proved unequal to the demands of the augmented fleet now that trams have been discontinued and new premises have been erected at Ravenhill, on the Carmarthen road, near Fforest Fach. Brunswick Street, however, remains the overhaul works, and also garages 100 buses.

The new Ravenhill depot is capable of housing some 150 double-deck vehicles. The main garage is 280 ft. by 240 ft., and thus covers an area of 67,200 sq. ft., with the addition of washing and cleaning space, administration quarters, and so forth. The total floor area is approximately 80,000 sq. ft. There are six repair pits, equipped with trough lighting and heating, and, as may be seen from one of our illustrations, the main well is arranged at pit-floor level and is equipped with a work bench.

Special attention has been given to lighting, both natural and artificial, and the windows facing the repair pits are over 17 ft. in height. The planning of the electric lighting equipment was the subject of close collaboration between the architects (Messrs. Henry A. Ellis & Sons, of St. Mary Street, Swansea) and the illuminating engineering department of the General Electric Co. Ltd., and, as a result, a highly efficient system of illumination has been installed. For lighting the main floor area forty-four 250-watt Osira electric discharge mercury vapour lamps with the necessary chokes and condensers have been installed, housed in distributive reflectors fitted with frosted well glasses. The mounting height and spacing were worked out to ensure the maximum of good lighting everywhere. For the washing space, where it was necessary to provide the maximum of light on the sides and lower portions of the vehicles, twelve similarly-rated Osira electric discharge lamps are used in parabolic angle reflectors. G.E.C. dispersive reflectors equipped with 200 and 500 watt Osram white bowl sprayed lamps are used for illuminating the stores, and over the repair pits. The lighting of the administrative section is carried out by means of G.E.C. "Utility" totally-enclosed glass diffusing fittings equipped with Osram lamps. These embody several novel features including a patent gallery and canopy in combination with a special spider suspension for holding the globe. This is so arranged that when the gallery is installed or removed, the canopy can be left suspended away from the spider, allowing both hands to be free for handling the globe. Equally when the globe is in position both hands are left free for adjusting the canopy, a feature that will be appreciated by all connected with the maintenance of lighting fittings. The installation was carried out by B. French of Kidderminster, who employed in the scheme, conduit, accessories, switches, fuseboards, main switchboards, and other material of G.E.C. manufacture.

G.E.C. trough lighting in one of the repair pits at Ravenhill depot

Electric Battery Van in L.N.E.R. Service

For frequent-stop collection and delivery work within a limited radius from the railhead, the electric battery vehicle affords a fast, economical, and silent unit, and is not unlikely to play an important part in the replacement of one type of horse-drawn railway van. The illustration alongside, for which we are indebted to our contemporary, *Electric Vehicles*, is a Wilson van mounted on an A.M.W. chassis in experimental L.N.E.R. service. It has an Exide T.L.11 battery of 30 cells with a capacity of 240 ampere-hours at the five-hour rate. The payload capacity is 18-22 cwt., and the special body has been fitted to meet the requirements of the L.N.E.R.

Thornycroft "Trusties" for the Southern Railway

JOHN I. THORNYCROFT & CO. LTD. has recently completed an order for the Southern Railway of six of the well-known "Trusty" class petrol-engined chassis for solo and trailer haulage, and the photograph reproduced shows one of these vehicles equipped with hinged and detachable-sided bodywork and timber gantry. The firm has now received instructions for ten similar chassis, nine of which will be equipped with drawbar gear and Neate's trailer brake gear; when used for trailer haulage the total pay load is 12 tons. All chassis will incorporate the Thornycroft 6-cylinder "AC6" type petrol engine, with a bore and stroke of 111 mm. and 133 mm. respectively, and developing up to 106 b.h.p. at 2,200 r.p.m.; those for trailer work have, in addition to the standard gearbox, an auxiliary gearbox of 1·5 ratio.

An outstanding feature of the design is the position of the front axle, which is set back more than usual to enable full advantage to be taken of the maximum legal axle loads for this class of vehicle. This construction also provides increased accessibility to the engine, and better manœuvring in traffic and congested railway yards. Hinged and detachable-sided lorry bodywork will be supplied for four chassis and platforms for the remainder.

Italian Extra-Urban Road Services

WE have received from the Italian Ministry of Communications a recently-issued volume of statistics of extra-urban public motorcar services, other than those operated by the National Transport Institute in substitution for superseded State Railway services. This volume is thoughtfully provided with translations in English, French, and German, of the titles of tables and table columns, so that their significance can be readily appreciated. During the period in question motor services replaced railway services on 287 km. of privately-owned railways, and extra-urban tramway services on 981 km. of route. The following table shows the displaced railway services. In practically every case the owning railway company is the operator of the new road service.

Railway Section Displaced	Date of Opening Road Service	Route Length of Road Service Km.
Massa Marittima—Follonica Porto	1– 2–1933	20
Aquila—Capitigliano	15–10–1933	38
Bosa—Macomer—Nuoro	29–10–1933	91·568
Robereto—Riva	18–11–1933	29
Cividale—Caporetto	1– 8–1932	27
Fano—Fermignano	1– 1–1933	43·780
Castelraimondo–Camerino	3–12–1930	12
Mandela—Subiaco	1–12–1933	25·500

Motor services for goods only were in operation in 1933 over 197 km. of route as indicated in the accompanying table:—

Route	Date of Opening	Length in Km.
Iesi—Fiumesino—Ancona	22–7–1922	29·830
Ancona—Recanati	6–2–1925	45
Atri—Stazione di Atri Pineta	11–9–1923	13·600
Tirano—Bormio	13–7–1929	42
Gazzaniga—Gandino	1–5–1932	6
Gorizia—Trieste	1–1–1932	46
Porto S. Stefano—Orbetello FF.SS.	1–7–1933	14·500

The development of motorcar services between 1930 and the end of 1933 is shown to be from 90,205 km. to 99,139 km. Of the total length of 99,139 km. in operation, 30,765 km. were in regular services, 40,249 km. provisional, 25,117 km. tourist, and 3,008 km. seasonal. The number of motorcars in operation in 1933 was 6,364, of which 2,653 were in regular services, 3,156 in provisional services, 363 tourist, and 192 seasonal.

Receipts from motor services in 1933 totalled lire 151,030,693, to which passengers contributed 138,993,879 lire, luggage, freight, &c., 5,481,227 lire and postal subsidies 6,555,587 lire. Operating expenses amounted to 187,813,890 lire, the operating ratio being 124 per cent. The staff employed in 1933 numbered 7,697. The number of passengers carried in 1933 was 41,916,780, compared with 40,286,000 in 1932, 39,774,000 in 1931, 40,792,213 in 1930, 38,436,000 in 1929, 34,693,000 in 1928, and 31,340,772 in 1927.

RED AND WHITE UNITED TRANSPORT LIMITED.—On May 19 last this company was incorporated to acquire a controlling interest in Red & White Services Limited, Eclipse Saloon Services Limited, Bassett-Enterprise Limited, and Gower Vanguard Motors (1920) Limited. The authorised capital is £1,000,000, and the prospectus issued on Tuesday stated that the four companies in question (together with their wholly-owned subsidiaries) formed the largest passenger road transport undertaking in the United Kingdom which remained entirely free from control by, or association with, the railway companies. The group owns 414 buses and coaches working a large number of local services in the counties of Gloucester, Monmouth, Glamorgan, Hereford, and Brecon, and long-distance coach services based on Cheltenham.

Overseas Notes

Road Development in Bombay

The Government of Bombay has drawn up a comprehensive scheme of road development spread over all the three major railways serving the province. The cost of road construction, amounting to Rs. 56 lakhs, will be met from Bombay's share of the Central Road Fund during the next four years. A senior member of the Indian Service of Engineers has been appointed to the post of Special Officer for Road Development. The Central Standing Committee for Roads has given its approval to the grant of Rs. 2·04 lakhs to the Travancore State for building a road bridge over the Periyar river at Alwaye. This bridge will connect the important town of Parur, and a densely-populated and productive area, with Alwaye, and also serve as a feeder to the South Indian Railway. The linking by road of Malabar and Cochin is envisaged in the sanction of a sum of Rs. 7·77 lakhs for the construction of a bridge across the Bharathapuza river on the Tirur—Ponnani road.

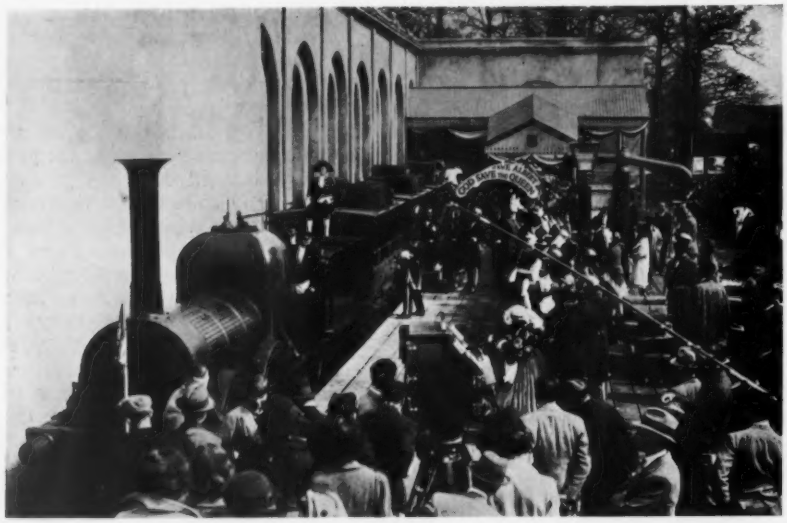
San Paulo Road Transport Results

Mr. Oliver R. H. Bury, presiding recently at the annual general meeting of the San Paulo Railway, said, "The results of the associated road motor company during the year have been encouraging. We dealt with 199,000 tons of goods and carried 341,000 passengers. Out of the goods tonnage, 169,000 tons were handed to the railway in mutual traffic, the road company collecting at destination for delivery to the customer, thus giving the door-to-door delivery so much appreciated by the public. The value of the tonnage handed to the railway in freight was 5,076 contos of reis or £60,000, which goes to offset the payment to the associated company under agreement of £51,170. We have continued to increase our fleet of motor lorries and vehiches during the year as the necessities of the traffic demanded. In this manner we are able to give to the public reliable and reasonable transport from door-to-door."

C. & D. in Canada

On May 1 the Canadian Pacific Express Company inaugurated with 92 new motor lorries a new railway freight collection and delivery service in Montreal, known as the Canadian Pacific Cartage Department. This new fleet provides an entirely separate service from that already given by the company's 60 trucks operated in Greater Montreal for pick-up and delivery of express shipments. The vehicles, which vary in capacity from two to five tons, were built specially for handling railway freight cargoes, and so offer both door-to-door service and also the benefit of fast rail transport. To house this fleet a modern garage is being built in Montreal near the Place Viger freight sheds, Notre Dame Street East; it is expected that the building will be completed within two months. A similar C. & D. service, but on a smaller scale, was introduced on March 1 last in Ottawa and Sherbrooke, where it has already proved popular among freight shippers. Plans have now been completed for similar facilities to be given at Three Rivers and St. Hyacinthe, and to extend them to other centres as occasion demands. The Canadian Pacific Express Company has so far bought 103 new motor vehicles in all for this department, of which six are in operation in Ottawa, two in Sherbrooke, and 92 in the Montreal district; Three Rivers will have two and St. Hyacinthe one.

Two views of a road motor lorry equipped by the Buenos Ayres & Pacific Railway for platelayer gangs. Such motors have been adopted for the transport by road of men and materials, as the great frequency of the train service on the Buenos Aires local section seriously delays rail trolleys. The use of road motors makes it possible to eliminate four gangs



Left: The Liverpool & Manchester Railway engine, "Lion," in steam again, at Bricket Wood station, L.M.S.R., Watford-St. Albans branch. The "Lion" was brought from Lime Street station, Liverpool, where it is usually displayed, for a scene in the film, "Victoria the Great," and a siding at Bricket Wood was converted to represent Euston station in 1840

Above: View at the Indian State Railways Dinner (*See report on page* 1091)

Right: An impressive night view of Flinders Street, Melbourne, Victorian Government Railways, showing the excellent platform lighting

RAILWAY NEWS SECTION

PERSONAL

On May 28 the Rt. Hon. Stanley Baldwin, M.P., tendered his resignation as Prime Minister and First Lord of the Treasury, and was succeeded in both offices by the Rt. Hon. Neville Chamberlain, M.P. On the same day a reconstruction of the Cabinet and the appointment of new ministers was announced, including the following changes of transport interest. Dr. Leslie Burgin is appointed Minister of Transport, succeeding Mr. Leslie Hore-Belisha, who becomes Secretary of State for War. Capt. A. U. M. Hudson remains as Parliamentary Secretary to the Ministry of Transport, and Dr. Burgin is succeeded in his former position as Parliamentary Secretary to the Board of Trade by Captain Euan Wallace. The new President of the Board of Trade is Mr. Oliver Stanley, succeeding Mr. Walter Runciman. Mr. A. E. Brown remains as Minister of Labour, but the new Parliamentary Secretary to that ministry is Mr. R. A. Butler, in succession to Lt.-Col. Muirhead.

Southern Railway Official Changes

It is officially announced by the Southern Railway Company that Sir Herbert A. Walker, K.C.B., General Manager, will retire as from October 14 next, and that the board has approved the appointment of Mr. Gilbert Savil Szlumper, C.B.E., Assistant General Manager, in his place. The Directors have also appointed Mr. O. V. Bulleid, Assistant to the Chief Mechanical Engineer, L.N.E.R., as Chief Mechanical Engineer of the Southern Railway as from November 1, 1937, in the place of Mr. R. E. L. Maunsell, who is retiring from the service.

The Rt. Hon. Lord Balfour of Burleigh has been elected a Director of the L.N.E.R. in succession to Mr. Frederick Liddell Steel, who has resigned.

Mr. Frederick William Baker has been appointed Chief Cashier of the London Midland & Scottish Railway Company as from June 1.

Mr. Arthur E. Hadley, Deputy Chairman of Rhodesia Railways Limited, has been elected Chairman in succession to Sir Henry Birchenough, whose death was reported in our issue of May 14.

Dr. Edward Leslie Burgin, LL.D., M.P., the newly-appointed Minister of Transport, has been since 1932 Parliamentary Secretary to the Board of trade. Born in 1887, he was educated at Christ's College, Finchley; at Lausanne, and in Paris. He entered upon a legal career, becoming a Scott Scholar of the Law Society in 1913, and has achieved a reputation as an international lawyer, a linguist, and an orator. He is an author of legal works, and has been principal and Director of Studies to the Law Society. During the war he had notable service in Italy as Intelligence Officer, for which he was mentioned in despatches and awarded the Italian Croce di Guerra. Dr. Burgin took up active participation in politics after the war, contesting Hornsey as a Liberal in the four years 1921 to 1924 inclusive, and East Ham in 1926. He entered Parliament as Liberal member for the Luton division of Bedfordshire in 1929, which seat, now as a Liberal National, he has held since that date. As Minister of Transport, Dr. Burgin succeeds the Rt. Hon. Leslie Hore-Belisha, who has been appointed Secretary of State for War.

Dr. Edward Leslie Burgin, LL.D., M.P.

Appointed Minister of Transport

Engineer and Railway Staff Corps Dinner

Sir Herbert Walker, General Manager of the Southern Railway, presided on May 31 at the annual dinner of the Engineer and Railway Staff Corps, held at the May Fair Hotel, Berkeley Square, London. The guests were :—

Field-Marshal Lord Milne, Field-Marshal Sir Cyril Deverell, Gen. Sir Harry Knox, Gen. Sir Edmund Ironside, Lt.-Gen. Sir Hugh Elles, Lt.-Gen. Hon. Sir Richard Montagu-Stuart-Wortley, Major-Gen. W. E. Venning, Col. W. R. Tyrrell, and Sir Herbert Creedy.

Other officers present were :—

Cols. Sir Ralph Wedgwood, M. F. Wilson, Sir George Humphreys, T. P. Frank, Sir Robert Elliott-Cooper, Sir Cyril Kirkpatrick ; Lt.-Cols. A. J. Barry, E. C. Cox, R. E. L. Maunsell, H. H. G. Mitchell, Sir David Owen, G. S. Szlumper, G. Ellson, E. J. Burt, R. B. Gwyther, H. J. Missenden, A. Binns, R. J. M. Inglis.

Majors F. E. Wentworth-Sheilds, K. T. Lomas, G. W. Shawcross, H. P. M. Beames, D. C. Urie, R. F. Hindmarsh, A. W. Donaldson, R. A. Thom, H. Firth, R. E. Cameron, H. B. Smith, E. H. d'E. Darby, W. H. S. Tripp, H. S. B. Whitley, A. H. McMurdo, F. M. Fuller, R. L. Anderson, M. G. J. McHaffie, H. E. O. Wheeler, R. P. Biddle and R. A. Bacon (Honorary Secretary).

Mr. F. J. Wrottesley, K.C., has been appointed a Judge of the King's Bench Division of the High Court of Justice in succession to Mr. Justice Talbot, who has resigned on being made a Member of the Privy Council. Mr. Wrottesley, who took silk in 1926, has had considerable practice in railway cases both at the Parliamentary Bar and in connection with rating appeals, and has frequently appeared for the London and North Eastern Railway Company.

L.N.E.R. Appointments

The L.N.E.R. announces that Captain A. H. Miller, Continental Steamers, Grimsby Docks, has been appointed Dockmaster, Immingham Dock; and Mr. J. G. Riddell, Assistant to Fish Market Superintendent, Grimsby Docks, has been appointed Fish Market Superintendent, Grimsby Docks.

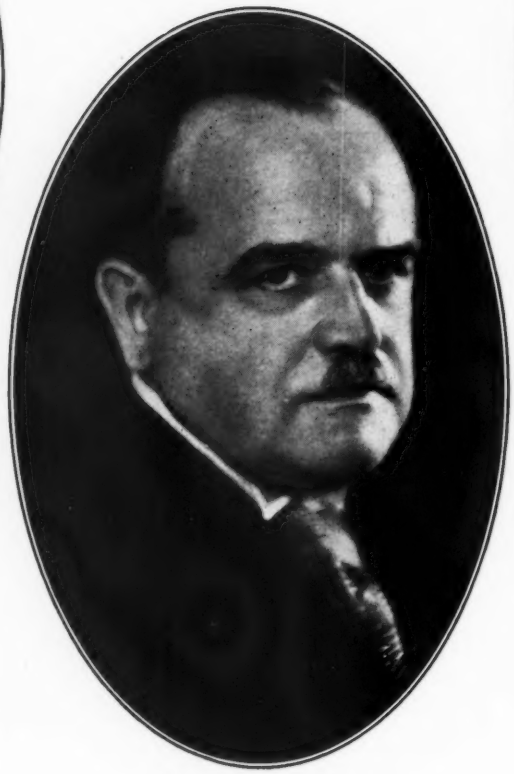
From *The London Gazette* of May 28: Regular Army Supplementary Reserve of Officers, Royal Engineers, Transportation: William Beatty Smith Miller to be Second Lieutenant (May 29).

XUM

International Railway Congress Paris, 1937

Monsieur P. Ghilain

General Secretary, International Railway Congress Association



Monsieur N. Rulot

President of the International Railway Congress and General Manager of the Belgian National Railways

Monsieur V. Teugels

Chief of the Secretariat, International Railway Congress Association

Monsieur N. Rulot, President of the International Railway Congress, which is at present meeting in Paris, has been General Manager of the Belgian National Railways since March, 1933. A brilliant scholar at the Athenée Royal, Huy, and Liége University, he obtained a diploma of *Ingénieur des Mines* and joined the Belgian State Railways as a probationer engineer. After varied experience he was placed in charge of an important post under the Chief Mechanical Engineer in 1920, where he completely reorganised the working of the various railway shops and locomotive depots, equipping them with up-to-date appliances. At the end of 1921 M. Rulot was appointed Assistant Chief Mechanical Engineer, and three years later became Operating Manager of the Congo Railway Company. In 1928 he returned to the Belgian National Railways as Chief Mechanical Engineer, where, as in the Congo, his work continued to be of outstanding merit, with the result that, when M. Foulon retired in March, 1933, the Board of Directors rewarded it by appointing M. Rulot as their General Manager. During the four years that M. Rulot has occupied this post, the Belgian railways have undergone far-

Monsieur B. d'Argentré

Secretary, Local Committee, Paris International Railway Congress, 1937

Monsieur de Boysson

Principal Secretary, Local Committee, Paris International Railway Congress, 1937

Monsieur A. Barois

Secretary, Local Committee, Paris International Railway Congress, 1937

reaching improvements in equipment and train services. The introduction of all-steel bogie coaches in replacement of wooden stock on passenger services of all descriptions was the subject of illustrated articles in our issues of January 25, and December 13, 1935. Numerous references have also been made in our pages to the fast, regular-interval intercity service provided by the Brussels—Antwerp electrification, and to the general speeding-up of communications achieved both with steam and diesel traction.

Mons. P. Ghilain, General Secretary, International Railway Congress Association, joined the Belgian State Railways service in 1909 and, after two years as Ingénieur in the repair shops, was transferred to the administrative side of the Département du Matériel et de la Traction. From 1925 to 1927 he was Président de la Commission du Réception du Matériel, and in 1927, on the formation of the Belgian National Railways Company, became Chef de Cabinet Adjoint du Ministre des Transports. He has been Ingénieur en Chef au Service du Matériel of the Belgian National Railways since 1927. M. Ghilain was appointed General Secretary of the International Railway Congress Association in 1925 and has since been responsible for the organisation of four congresses, those at London, Madrid, Cairo and Paris. He is an Officier de l'Ordre de Léopold, and Commander de l'Ordre de la Couronne.

Mons. V. Teugels, Chief of the Secretariat, International Railway Congress Association, began his railway service in 1893 with the Belgian State Railways and in 1895 was appointed to the London office where he remained until 1922. He then joined the Advertising Department of the State Railways in Brussels, and was associated with the inauguration of the first international Pullman car trains. M. Teugels's intimate knowledge of England was of great service during the London Congress of 1925, and in 1928 he was appointed Chief of the Secretariat of the International Railway Congress Association. M. Teugels was awarded the insignia de l'Ordre de Léopold and the Médaille du Roi Albert for his services during the war.

Mons. de Boysson, Principal Secretary, Local Committee, Paris International Railway Congress, entered the service of the Paris-Orleans Company in 1909. He received his early training from 1897 to 1900 in the Ecole Polytechnique, where so many of the country's noted engineers have studied. Mons. de Boysson gained valuable experience as a naval architect in the service of the French Navy from 1901 to 1909. On his transfer to railway engineering his first duties with the Paris-Orleans Company were as Ingénieur de Traction, and he rose to the position of Ingénieur en Chef du Matériel et de la Traction, which he held from 1927 to 1930. He has been at his present post as Assistant General Manager of the P.O.-Midi since 1930. M. de Boysson is an Officier de la Légion d'Honneur.

Mons. B. d'Argentré, Secretary, Local Organising Committee of the International Railway Congress in Paris, was born in 1892, and in 1920 entered the service of the Paris-Orleans Railway. After experience in the works at Tours, he was transferred to the Chief Mechanical Engineer's Department in Paris. He was placed in charge of social services on the P.O. Railway in 1930, and since 1934 has been head of the same department on the combined P.O.-Midi system. M. d'Argentré was awarded the Croix de Guerre for his war services.

Mons. A. Barois, Secretary, Local Committee, Paris International Railway Congress, was trained as an electrical engineer in the Ecole Supérieure de l'Electricité, and entered the service of the Midi Company in 1924 for the electrification of the line from Bordeaux to Hendaye. He had previously had extensive experience as an electrical engineer during service in the French Navy, where he began his engineering career. Since the fusion of the Paris—Orleans and Midi systems, M. Barois has been in Paris and is now Ingénieur en Chef attaché au Service Central du Matériel et de la Traction. M. Barois was awarded the Croix de Guerre for war services, and has since also received the insignia of Chevalier de la Légion d'Honneur.

Forthcoming Events

May 31–June 11.—International Railway Congress, in Paris.
June 5 (*Sat.*).—Inst. of Welding, at South Wales and Monmouthshire Inst. of Engineers, Park Place, Cardiff, 6.30 p.m. "Arc Welding," by Mr. James F. Lincoln.
June 7 (*Mon.*).—Inst. of Engineers and Shipbuilders, 39, Elmbank Street, Glasgow, 7.30 p.m. "Arc Welding," by Mr. James F. Lincoln.
June 9 (*Wed.*).—Diesel Engine Users' Association, at Crewe. Summer Meeting.
June 9-12.—Tramways, Light Railways and Transport Association, at North British Station Hotel, Edinburgh. Annual Congress.
June 10 (*Thurs.*).—Exide Service Convention, at Hotel Metropole, Folkestone.
Inst. of Welding, at Inst. of Mechanical Engineers, Storey's Gate, London, S.W.1, 6.30 p.m. "Arc Welding," by Mr. James F. Lincoln.
June 12 (*Sat.*).—Permanent Way Institution (Manchester–Liverpool), at Temperance Inst., London Street, Southport, 3 p.m. "Brickwork and Concrete," by Mr. J. Wolstencroft.
June 14 (*Mon.*).—Institution of Mechanical Engineers, in Leicester. Summer Meeting.
June 17-21.—Stephenson Locomotive Society. Summer Tour in Scotland.
June 26-July 11.—Institute of Transport, in Germany. Congress.
July 2–9.—Permanent Way Institution (Manchester–Liverpool). Summer Convention.
July 3 (*Sat.*).—Stephenson Locomotive Society (London). Visit to Bedford, Wellingborough and Kettering Sheds, L.M.S.R.
July 7 (*Wed.*).—Inst. of Electrical Engineers, Savoy Place, London, W.C.2. Conversazione to Overseas Members.

Staff and Labour Matters

Railway Wages

A further meeting was held in London on Friday last, May 28, between representatives of the four main-line railway companies and representatives of the National Union of Railwaymen, the Amalgamated Society of Locomotive Engineers and Firemen, and the Railway Clerks' Association, in connection with the claims of the three railway trade unions. The companies' reply was in the negative, and the trade union representatives stated they would report to their respective bodies.

Railway Shopmen

A further meeting of the National Railway Shopmen's Council was held in London on Friday last, May 28, to consider claims submitted by the employees' side of the council. The matters were fully discussed, and the trade union representatives stated they would report the position to their respective bodies, after which a further meeting of the council will be held.

A.S.L.E.F. Annual Conference

Interesting figures concerning the membership and the funds of the Associated Society of Locomotive Engineers and Firemen were given on Monday last when the society's annual assembly of delegates opened in London. The President, Mr. W. J. Evans, said the membership was now in the region of 53,000, and Mr. W. J. R. Squance, General Secretary, reported that the society had £535,000 invested, their assets having increased during 1936 by over £38,000. References were made to forthcoming negotiations with the London Passenger Transport Board in respect of staff employed on the board's railways, and it was intimated that, among other claims, the society and the National Union of Railwaymen were asking for a six-hour day.

French Railways Staff Association Conference

The annual conference of the Association Fraternelle des Employés et Ouvriers des Chemins de fer Français was held in Paris last week and closed on Saturday, May 29, by a fête, comprising a banquet and concert, which was honoured by the presence of a representative of the President of the French Republic, by M. Bedouce, Minister of Public Works, and by high officials of the various railway companies. At the end of 1936 the active membership of the association was 127,779, covering members of all grades of railway staff employed in France and in the French Colonial possessions. Subscriptions paid last year amounted to over eleven million francs.

The International Railway Congress at Paris

(*From our special correspondent*)

Although the discussions on the thirteen questions under consideration by the Thirteenth Session of the International Railway Congress did not begin till Wednesday, June 1, the preliminaries of registration and the formal inauguration occupied Monday and Tuesday. A few early delegates had a comfortable time on the previous Friday and Saturday registering and settling in, and the late-comers of Monday afternoon, too, avoided the rush of that morning and so could be fresh for their first evening in Paris. On Monday forenoon at the fine new Maison de la Chimie, the headquarters of the Congress, the most exalted jostled with the comparatively lowly in the throng that nearly—but not quite—overwhelmed the patient officers of the Secretariat and the Local French Organising Committee.

By Tuesday morning, the 850 or so delegates from all over the world had been furnished with their badges, tickets, programmes, and other necessary—and unnecessary—paraphernalia, and a truly representative railway gathering assembled in the great lecture theatre for the inaugural ceremony, which took place in the presence of M. Albert Lebrun, President of the Republic.

M. Albert Bedouce, Minister of Public Works, and President of the Local Committee, in delivering the inaugural address, laid stress on the special mark of honour President Lebrun had given to the International Railway Congress by his attendance at the opening of the Thirteenth Session. The Minister, in a happy allusion to the early history of railways in France, recalled the fact that Frenchmen look upon the year 1937 as the centenary of the railways. It was in 1837 that a first great parliamentary debate brought the general problem of railway construction before the nation's representatives. But despite the fact that a French engineer, M. Boniet, had built the first line for mining work in France, the French at that time had allowed themselves to be outdistanced in railway matters by England and Belgium. With the building of the line from Paris to Saint-Germain, however, Renan (on going from Brittany in 1837 by mail coach to St. Germain) was able to write to his mother: "I am now in the region where the railway begins." Today, continued M. Bedouce, none could say where the railway began or ended, so much had it multiplied in the five continents. By the possibilities it had provided for trade, it had completely transformed the economic conditions of human life. In conclusion, M. Bedouce warmly welcomed the members of the Congress as visitors to the International Exhibition, where the flags of many nations are flying gaily amid those of the French above the wonders created by the peoples in peaceful emulation, and he noted as not the least among these wonders that miracle of intelligence and power, the modern locomotive.

M. Rulot, General Manager of the Belgian National Railways and President of the International Railway Congress Association, followed with a brief speech in which he reviewed the questions to be discussed by the delegates. He emphasised the progress in organisation and modernisation made by the world's railways to satisfy new needs. He concluded by expressing the thanks of the delegates to President Lebrun and M. Bedouce, in graciously consenting to be Honorary President and Vice-President of the Congress. He then requested Baron Edouard de Rothschild to accept the post of Chairman of the Congress with M. Le Besnerais, General Manager of the Nord, and M. Henry Gréard, General Manager of the Paris Orleans-Midi, as Vice-Chairmen.

Baron Edouard de Rothschild in reply stressed the work done by the International Railway Congress since it was formed in 1885, remarking that this was the third time that the Congress had been held in Paris at the same date as an international exhibition. The Chairman then obtained approval for the designation of MM. de Boysson, Cambournac, and Ghilain as General Secretaries of the Congress and of Dr. Kittel and Sir Nigel Gresley as Assistant General Secretaries.

The Congress programme is planned on the usual lines, of sectional meetings in the mornings and visits to places of railway interest in the afternoons. Certain afternoons and evenings are set aside for social functions, including a garden party to be given by the President of the Republic at the Elysée next Wednesday, and excursions.

The discussion of the thirteen questions to be considered by the delegates began on Wednesday morning after the installation of the sectional chairmen, and those subjects of the greatest importance are given two consecutive mornings. This has the dual advantage of allowing most of the delegates to have their say, and of providing the opportunity of informal discussion between the two sittings. Thus the mornings of Wednesday and Thursday were allotted to Questions I, IV, and X—permanent way under modern high speed traffic, railcars, and the effects of the world crisis and road competition on the railways, respectively.

The Supplement issued with THE RAILWAY GAZETTE of May 21, in which the various Reports were condensed and collated, and with which all the delegates were provided, was, to judge by comments overheard, evidently found to have been useful at least by those who speak or can read the English language. Which prompts an appreciation of system of simultaneous translation of speeches with which the lecture hall was equipped for the inaugural ceremony. Headphones were provided for every seat, and the remarks of the speakers, which were delivered in French, could be heard in English or German by the wearers of the headphones, according to which they chose to switch on. If this system could have been extended to the discussions at the sectional meetings, it would have been an almost inestimable advance on the old time-consuming and wearisome method of translating the speaker's remarks after every speech. However that, it seems, must be for the future.

After the heat of the week-end the weather has been all that could be desired for the afternoon visits. Except for a reception on Wednesday by the Municipality at the Hotel de Ville, the delegates are divided into groups for the various visits. The locomotive testing station at Vitry* attracted the biggest crowd on Tuesday. There a Nord Pacific, with the reciprocating parts completely balanced, was run up to 80 m.p.h. and gave an absolutely steady drawbar pull. After Vitry, the great Arrighi power station and the 220,000-volt substation at Chevilly were visited.

Another, smaller, group accepted the hospitality of the Nord to inspect the new carriage depot at Le Landy,† and the locomotive and railcar depots at La Chapelle. At the former, one of the all-steel push-and-pull suburban trains was seen. These were also to be observed passing on the adjoining lines, hauled or pushed by 2-8-2 tank engines at speeds up to 60 m.p.h. They have all-electric control from the driving cab to the locomotive, and the coaches, which have Pullman vestibules, are automatically coupled. The 8-car trains can be split into shorter trains for service in the slack hours.

At La Chapelle some of the new 3-car diesel-electric high-speed sets,‡ as used on the Franco-Belgian through services, were on view, as well as many of the main line express locomotives of the Nord, including the streamlined Pacific.

A special railcar conveyed the party from the Gare du Nord to Le Landy, and back from La Chapelle, but a surprise was provided by M. Lancrenon, Chief Mechanical Engineer of the Nord, who personally conducted the party, in the provision of a train of antique coaches to take the guests from Le Landy to La Chapelle. Your own correspondent travelled in a first class carriage built in 1846 and found it rode quite well at what was probably the normal speed of that period.

The third visit of Tuesday was to

* Described in THE RAILWAY GAZETTE of September 28, 1934.

† Described in THE RAILWAY GAZETTE of December 20, 1935.

‡ Described in the *Diesel Supplement* to THE RAILWAY GAZETTE of September 4, 1936.

the psychotechnical laboratory of the Société des Transports en Commun de la Région Parisienne (S.T.C.R.P.), which corresponds to the L.P.T.B. in London. On Thursday afternoon these visits were made by other delegates, and visits were also arranged to the new Gare de l'Est, the Est marshalling yard at Vaires, that of the Nord at Le Bourget, the C.T.C. office of the Etat at St. Lazare, and the printing works of *L'Illustration* at Bobigny.

Well-known and notable figures are to be seen these days at the Maison de la Chimie, but there is one at whose absence many expressions of regret are heard. M. Raoul Dautry's retirement from the General Managership of the French State Railways is, indeed, the subject of widespread regretful comment in France, particularly in that north west quarter which has so greatly benefited from his administration.

Indian State Railways Dinner

The annual Indian State Railways Dinner was held at the East India United Service Club on Friday last, with Sir Preston Colvin, O.B.E., in the chair, and Sir Ralph Wedgwood, C.B., C.M.G., as guest of the evening. Those present were:—

Sir Preston Colvin, Sir Ralph Wedgwood, Sir Gordon Hearn, Sir George Colvin, Sir Seymour Tritton, Sir Clement Hindley, Mr. A. S. Jameson, Sir Francis Couchman, Messrs. D. S. Burn, A. Peel Goldney, W. Tomes, W. A. Stanier, J. A. Kay, F. A. Pope, F. S. Bond, D. Ross Johnson, L. H. Kirkness, G. Tait, D. C. Campbell, H. H. Saunders, J. E. G. Palmer, J. Tritton, W. J. Wakley, B. P. Ellis, C. V. Bliss, M. S. Ahmed, K. N. Ranga Rao, E. H. B. Heysham, P. L. J. Hands, J. C. Gibson, R. Bonar and guest, P. N. Mubaiyi, V. P. Kulkarni, M. Meldrum, T. G. Creighton, S. Avril, F. B. Martin, V. H. Boalth, D. Cardew, J. M. Hartley, N. D. Calder (Secretary), Aubrey Pollock, A. C. Robertson, Lt.-Col. Budden, Commander K. J. Southgate, Messrs. A. Pickard and guest, W. B. Burford, E. W. Russell, A. E. Mould, P. Wood, W. G. Alcock, A. E. Aylott, H. Huggins, W. G. Hornett, E. W. Slaughter, S. T. Gresham, H. C. Muggeridge, A. R. Lilley, D. Macaulay, and V. P. Bhandarkar.

The Chairman announced that on behalf of the Dinner he had sent a telegram of congratulations and an expression of loyalty to H.M. the King, in this his Coronation year, and had just received a reply of thanks and good wishes for the success of the evening from His Majesty, signed by his Private Secretary. Sir Preston later proposed the loyal toasts, and then those of the Indian State Railways and the guests. He began by outlining the history of the dinner, which originated in 1906 as a North Western Railway Dinner, but in 1913 became an I.S.R. service dinner instead. Due to the war it was not held again until 1922, since when Mr. Jameson had presided over it annually, and until last year Mr. H. B. Holmes had been Honorary Secretary. Mr. N. D. Calder had now stepped into the breach, and he voiced the sentiments of all in thanking him for doing so.

Sir Preston explained that though he had had long service on the Burma Railways he had come into really close touch with the State Railways only during the last 10 years or so, but could state with confidence that among their officers *esprit de corps* was always conspicuous. In India the public looked upon the State lines as a fair butt for their attacks, which tended the more to make railway officers cling together. After six lean or barren years, Indian railways now seemed to be coming nearer to the promised land, and it was to their distinguished guest that they looked for a land flowing with milk and honey. In fact, they all looked forward with the greatest interest to the report of Sir Ralph's committee, as they realised the value of sound advice on such weighty matters. After voicing an appreciation of Sir Ralph's action in leaving his heavy burden of work at home, which was no easy matter, the Chairman proposed the toast of Sir Ralph Wedgwood coupled with that of his fellow guests.

Sir Ralph Wedgwood, in response on his own and their behalf, thanked the I.S.R. for their hospitality, and said that his committee had already enjoyed three pleasant months of such hospitality in India. Their report was now finished and signed, and so he and two other members of the committee, whom he was glad to see present, could enjoy a festive evening. On the other hand, as the report was not yet published, the committee was still the fitting object of the hospitality now offered! Referring to the Chairman's speech, he said he was afraid the report might make the fur fly, instead of making milk and honey flow. They had spent three busy, happy months touring India, and he had been greatly struck by the kindness, the openness—for there was never any suggestion of concealment—and the hospitality they had everywhere received; above all, the fact that no speeches were expected of the committee was most pleasing. They had made many friends, and all the members had been impressed with the State system of railways in India, whether State-owned and company-worked or State-worked. The great distances—to which one was unaccustomed in this country—were particularly striking, as were the great bridges, wonderful hill railways and other tremendous engineering accomplishments throughout the sub-continent. He had been most of all impressed, however, with the wonderful spirit of *camaraderie* which extended from the top to the bottom of the railway personnel, and the spirit of self-effacing endeavour, coupled with remarkable efficiency.

His one criticism was that the Kipling phrase, " he would not advertise," was carried too far. It was all very well to talk about being " without honour in his own country," but the Indian railwayman had done a great deal to deserve a better press. More might be done to popularise the railways generally in India, and this they deserved. For instance they might justifiably advertise the facts that, though their rates and fares were among the lowest in the world, the Indian railways yet paid a better return on capital than those of any other country except South Africa, which had gold production behind it. This was not widely known in India.

Sir Ralph concluded by saying that they hoped their report would prove helpful to the railways and that they had done more good than harm; this was the best verdict they could expect. If they had helped good causes and those who supported them, they felt they had done some good. He finally said how much they appreciated the honour of being the guests that night, and expressed the thanks of himself and his fellow guests.

The commendably short list, comprising only these two excellent speeches, concluded the official proceedings, and a thoroughly good dinner and enjoyable evening were appreciated by all, thanks to the excellent arrangements made by the Honorary Secretary and by the E.I.U.S. Club, which, will, we hope, be the future *rendezvous* of these pleasant annual reunions.

Parliamentary Notes

L.M.S.R. Order Confirmation Bill

The London Midland & Scottish Railway Order Confirmation Bill was read a third time in the House of Lords on June 1.

Bristol Transport Bill

The Standing Orders Committee of the House of Lords meeting on June 1 decided that, in the case of the Bristol Transport Bill, the Standing Orders should be dispensed with and the promoters be allowed to proceed with their Bill. The measure will confirm an agreement between the Bristol Corporation and the Bristol Tramways & Carriage Co. Ltd., which provides for the sale to the corporation of the company's statutory (tramways)undertaking for £1,125,000, to be taken either in cash or Bristol Corporation stock. There would then be a scheme of co-ordination by which the tramways and the company's city bus undertaking would be operated as a single unit, and the net surplus of revenue divided equally between the two parties.

L.M.S.R. New Halt.—A new halt, to be known as Girtford halt, is to be provided by the L.M.S.R. on the Bedford–Cambridge line, about midway between Blunham and Sandy stations.

NOTES AND NEWS

New Mersey Air Ferry.—An air ferry service across the Mersey, between Hooton (Cheshire) and the Liverpool airport at Speke, is now being operated by Utility Airways. Connections with Railway Air Services and other internal routes are afforded at Speke.

Driver of L.N.E.R. London-Edinburgh Express Killed.—The driver of the 8.25 p.m. express from King's Cross to Edinburgh was killed at Sandy, Bedfordshire, on June 1, when unfortunately he was pulled from his cab by the mail-bag exchange apparatus.

"Juno" Launched for L.M.S.R. Clyde Passenger Service.—The new L.M.S.R. paddle steamer *Juno* was launched on May 26 from the yard of the Fairfield Shipbuilding & Engineering Co. Ltd., Govan. Mrs. H. L. Thornhill, wife of the Chief Legal Adviser to the L.M.S.R., performed the naming ceremony.

Running-in L.M.S.R. Pacific "Coronation."—The new L.M.S.R. streamlined Pacific, No. 6620, *Coronation*, described in our issue last week, is now being run-in on workings between Crewe and Liverpool, and Crewe and Shrewsbury. On June 1, the first day of running-in, *Coronation* worked the 12 noon West of England express between Liverpool and Crewe.

Fitzwilliam Halt.—A new halt built by the L.N.E.R. at Kinsley Road bridge between Hemsworth and Nostell stations on the line from Doncaster to Wakefield was brought into use on Tuesday, June 1. It will serve the mining villages of Fitzwilliam, Kinsley, Brackenhill, Ackworth, and Havercroft, which are all within a radius of about 1¼ miles. The halt consists of a 250-ft. island platform, booking office, and waiting room.

Argentine Government Purchase of the Transandine Railway.—Negotiations for the purchase of the Transandine Railway by the Argentine Government are now reported to be nearing completion, and the sum involved is stated to be 10,000,000 gold pesos, part of which would be paid in bonds. It will be remembered that the Government has decided to rebuild the portion of the line destroyed by floods and land slides a few years ago.

Accident at Walton, near Wakefield, L.M.S.R.—As a passenger train was approaching Sandal and Walton station on Sunday morning, May 30, the rear carriage became derailed at some points and was dragged along, struck a signal gantry, and the body became detached from the bogies. Miss Phyllis Rushworth was flung out on the line and killed, and Mr. J. S. Wilson fatally injured. The inquest was opened at Wakefield, on June 1, by the West Riding Coroner, Mr. C. J. Haworth, and, after evidence had been given by the driver of the train, G. T. Dett, and Ganger J. S. Cox, tending to show that certain bolts were missing or loose in permanent way fittings, the Coroner decided to adjourn the inquest until June 10. Mr. G. A. Challinor, Assistant Divisional Solicitor to the railway company, expressed sympathy with the relatives of those killed and injured and said that all reasonable claims would be considered sympathetically.

Platelayers Run Down by L.M.S.R. Express.—One man was killed and two injured when the L.M.S.R. Belfast boat express from Heysham to Euston ran into a gang of platelayers at Bamfurlong Junction, near Wigan, on June 1. The express was apparently obscured from the men's view by a cloud of smoke from a passing slow train, which also drowned the noise of the approaching express.

R.C.A. and Pickfords.—At the closing session of the recent annual conference of the Railway Clerks' Association the executive committee was urged to use every possible means to impress on branch secretaries, in the areas concerned, the importance of doing all possible to recruit eligible members of Pickfords associated companies' staffs to the R.C.A. so that the question of recognition of the association, as the negotiating body for them, should be brought to a successful conclusion.

G.W.R. Portable Loudspeaker Unit for Crowd Control.—A portable loudspeaker unit for controlling football, racing, or Bank Holiday crowds at stations has been brought into use on the Great Western Railway. The unit is composed of six loudspeakers, on stands, arranged in two circuits with individual or simultaneous control, and will be operated by the local station staffs. The unit is self-contained, and was tried out with complete success on Whitsun Monday at Weston-super-Mare, and at Windsor in connection with the arrival of the Rochdale excursions when the work of entraining and detraining large crowds of passengers was considerably expedited.

Jersey Air Services for Brighton and Exeter.—From Monday last, May 31, Jersey Airways Limited, in association with the Great Western and Southern Railways, has operated new services between Jersey and Shoreham (for Brighton, Hove, and Worthing); and between Jersey and the newly-opened airport at Exeter. The Jersey-Shoreham service flies daily except on Wednesdays and Thursdays, and makes two trips each way on Saturdays and Sundays. On Wednesdays and Thursdays passengers between Jersey and the towns served by Shoreham airport may travel by air to Southampton, and complete the journey by rail without extra charge to any station between Worthing and Brighton inclusive. The new Jersey—Exeter service runs on Mondays, Tuesdays, Fridays, and Saturdays, making two trips each way on Saturdays. Exeter is also now an "on request" stop for Railway Air Services' machines flying between Bristol and Plymouth.

Derailment at Baker Street, Metropolitan Line.—Some delay was caused yesterday (Thursday) morning to trains on the Aylesbury and Inner Circle routes of the Metropolitan Line, London Transport, when two coaches of a train crossing from the Inner Circle to the Aylesbury line platform at Baker Street station were derailed. Ten persons suffered from shock or slight injuries. Trains from Wembley, Harrow, and beyond which normally run through to the City were turned at Baker Street, and Inner Circle and Hammersmith line trains were temporarily suspended.

Institution of Civil Engineers' Conversazione.—The annual conversazione of the Institution of Civil Engineers took place on Wednesday, June 2, at 7.30 p.m., when, in addition to exhibits by the National Physical Laboratory, the Forest Products Research Laboratory, the Building Research Station, the Road Research Laboratory, the General Post Office, and the Ordnance Survey Department, and by many members of the institution, there were two special exhibits, one dealing with the development of methods of construction of roads and bridges from Roman times to the present day, and the other with television apparatus. A tablet to Thomas Telford, F.R.S., was unveiled by the President, Sir Alexander Gibb, G.B.E., C.B., F.R.S.

Coventry Machine Tool Works Extensions.—Large-scale extensions, which add 5,200 sq. ft. and 50 per cent. productive capacity to the Coventry factory of Coventry Machine Tool Works Limited have now been completed. The principal extension, covering an area of 3,400 sq. ft., will be used for housing a new development in British forging plant manufacture, namely, horizontal forging machines, weighing 150 tons upwards, which can forge bars of steel very much greater than it has been possible hitherto to forge with plant made in this country. The new plant is designed for use in the motorcar, ball-bearing, ship-building, agricultural machinery, and other engineering industries. The factory extensions now in progress, with plant and equipment, will cost over £17,000.

Lincoln Welding Lectures.—Mr. James F. Lincoln, in whose honour the James F. Lincoln Arc Welding Foundation was created by the Lincoln Electric Company, is visiting England and will deliver a series of lectures on arc welding. The foundation, as recorded in our issue of February 26, is conducting a £40,000 prize contest for papers on arc welding. Mr. Lincoln will speak tomorrow, June 5, at the South Wales and Monmouthshire Institure of Engineers, Park Place, Cardiff

(6.30 p.m.). Next Monday, June 7, Mr. Lincoln visits Glasgow to lecture to the Institute of Engineers and Shipbuilders at Rankine Hall, 39, Elmbank Street; and on Thursday, June 10, he will speak at the Institution of Mechanical Engineers, Storey's Gate, London, S.W.1. Admission is free, but tickets must be obtained either from the Lincoln Electric Co. Ltd., Welwyn Garden City, Herts, or, for the lectures on June 5 and June 10, from the Institute of Welding, 7, Holborn Hall, Gray's Inn Road, London, W.C.1.

Northern Ireland Traffics.—Passenger receipts for the first two months of 1937 on railways wholly in Northern Ireland amounted to £26,918, against £29,613 for the corresponding period of 1936, with a fall from 547,908 to 456,151 in the number of passengers (apart from season-ticket holders) carried. Merchandise and mineral tonnage for the two months fell from 107,491 tons to 90,304 tons, and the total goods traffic receipts from £38,350 to £34,436. Railways partly in Northern Ireland carried 575,061 ordinary passengers in the first two months of 1937, against 681,871 in the first two months of 1936, and total passenger receipts fell from £52,644 to £49,454. The quantity of merchandise and minerals carried fell from 157,530 tons to 146,519 tons, and total goods traffic receipts from £103,984 to £94,019. On the purely northern railways, the number of live stock carried in the first two months of 1937 rose from 23,644 to 33,700, but on the cross-border railways it fell from 108,119 to 93,541.

L.N.E.R. (N.E. Area) Athletic Association.—This society will hold a sports meeting at the Railway Institute Sports Ground, New Lane, Acomb Road, York, on June 5, to be open to competitors from all parts of the system. For members of the association, cricket and tennis competitions will be held at Newcastle, Darlington, York, and Hull, leading up to semi-finals and finals between the various district winners at York. Thirty-two teams have entered for the cricket championship. The tennis section will hold ladies' doubles and men's singles and doubles tournaments.

British and Irish Traffic Returns

GREAT BRITAIN	Totals for 21st Week			Totals to Date		
	1937	1936	Inc. or Dec.	1937	1936	Inc. or Dec.
	£	£	£	£	£	£
L.M.S.R. (6,874 mls.)						
Passenger-train traffic...	506,000	646,000	— 140,000	9,277,000	8,847,000	+ 430,000
Merchandise, &c. ...	502,000	491,000	+ 11,000	10,186,000	10,025,000	+ 161,000
Coal and coke ...	265,000	209,000	+ 56,000	5,739,000	5,378,000	+ 361,000
Goods-train traffic ...	767,000	700,000	+ 67,000	15,925,000	15,403,000	+ 522,000
Total receipts	1,273,000	1,346,000	— 73,000	25,202,000	24,250,000	+ 952,000
L.N.E.R. (6,320 mls.)						
Passenger-train traffic...	317,000	370,000	— 53,000	6,056,000	5,762,000	+ 294,000
Merchandise, &c. ...	356,000	333,000	+ 23,000	7,062,000	6,854,000	+ 208,000
Coal and coke ...	256,000	216,000	+ 40,000	5,360,000	5,111,000	+ 249,000
Goods-train traffic ...	612,000	549,000	+ 63,000	12,422,000	11,965,000	+ 457,000
Total receipts	929,000	919,000	+ 10,000	18,478,000	17,727,000	+ 751,000
G.W.R. (3,738½ mls.)						
Passenger-train traffic...	206,000	263,000	— 57,000	3,857,000	3,716,000	+ 141,000
Merchandise, &c. ...	201,000	205,000	— 4,000	4,086,000	3,985,000	+ 101,000
Coal and coke ...	120,000	96,000	+ 24,000	2,372,000	2,199,000	+ 173,000
Goods-train traffic ...	321,000	301,000	+ 20,000	6,458,000	6,184,000	+ 274,000
Total receipts	527,000	564,000	— 37,000	10,315,000	9,900,000	+ 415,000
S.R. (2,153 mls.)						
Passenger-train traffic...	324,000	398,000	— 74,000	5,964,000	5,617,000	+ 347 000
Merchandise, &c. ...	67,000	75,000	— 8,000	1,243,000	1,315,500	— 72,500
Coal and coke ...	31,000	27,000	+ 4,000	671,000	693,500	— 22,500
Goods-train traffic ...	98,000	102,000	— 4,000	1,914,000	2,009,000	— 95,000
Total receipts	422,000	500,000	— 78,000	7,878,000	7,626,000	+ 252,000
Liverpool Overhead ... (6½ mls.)	1,338	1,190	+ 148	25,280	23,421	+ 1,859
Mersey (4½ mls.) ...	3,999	3,973	+ 26	88,775	85,291	+ 3,484
*London Passenger Transport Board ...	470,500	570,300	— 99,800	26,437,900	26,184,100	+ 253,800
IRELAND						
†Belfast & C.D. pass. (80 mls.)	2,344	2,390	— 46	40,824	41,155	— 331
,, ,, goods	449	506	— 57	10,585	12,016	— 1,431
,, ,, total	2,793	2,896	— 103	51,409	53,171	— 1,762
Great Northern pass. (543 mls.)	9,850	9,200	+ 650	181,750	179,300	+ 2,450
,, ,, goods	9,700	9,700	—	198,600	216,650	— 18,050
,, ,, total	19,550	18,900	+ 650	380,350	395,950	— 15,600
Great Southern pass. (2,075 mls.)	32,061	30,177	+ 1,884	615,976	617,548	— 1,572
,, ,, goods	39,699	40,966	— 1,267	871,168	894,322	— 23,154
,, ,, total	71,760	71,143	+ 617	1,487,144	1,511,870	— 24,726

Whitsuntide, 1936

* 48th week (before pooling) Central Bus Strike, Sunday to Thursday † 22nd week

British and Irish Railway Stocks and Shares

Stocks	Highest 1936	Lowest 1936	Prices June 2, 1937	Rise/Fall
G.W.R.				
Cons. Ord. ...	64¼	45½	61½	−2
5% Con. Prefce. ...	126½	116¾	121½	+1
5% Red.Pref.(1950)	113	108½	111½	—
4% Deb.	119½	110½	110½	—
4½% Deb.... ...	121	114	113	+1
4½% Deb.... ...	129	121	119½	—
5% Deb.	141	134	130½	—
2½% Deb.... ...	79⅛	74	70½	—
5% Rt. Charge ...	136½	130	129½	+1
5% Cons. Guar. ...	135¼	127¾	127½	—
L.M.S.R.				
Ord.	35⅝	17	33¼	−⅝
4% Prefce. (1923)	83	52½	77	−½
4% Prefce. ...	92¾	81	87	—
5% Red.Pref.(1955)	109¼	103¼	106½	+1
4% Deb.	111¾	105 9/16	107	+½
5% Red.Deb.(1952)	119⅝	115½	112½	—
4% Guar. ...	106¾	101⅝	102½	+1
L.N.E.R.				
5% Pref. Ord. ...	14	9	10½	−¼
Def. Ord.	7¼	4¾	5¼	—
4% First Prefce.	79¼	55¼	71½	+1⅛
4% Second Prefce.	31⅞	18¼	25½	−½
5% Red.Pref.(1955)	100½	77¾	96	+1
4% First Guar. ...	104½	98¾	100½	+½
4% Second Guar.	99	90	93	+1
3% Deb.	85¾	79	82	+1
4% Deb.	109¾	104½	106	+½
5% Red.Deb.(1947)	116¼	110½	109½	—
4½% Sinking Fund Red. Deb.	111½	107½	108½	—
SOUTHERN				
Pref. Ord.... ...	98¾	82½	92	—
Def. Ord.	27⅝	20⅛	22¾	−1¼
5% Pref.	120¾	118½	119½	—
5% Red.Pref.(1964)	119¾	115¼	115½	—
5% Guar. Prefce.	136	129½	128	+½
5% Red.Guar.Pref. (1957)	120	115¾	115½	—
4% Deb.	117 5/16	109½	109½	—
5% Deb.	140	134	128½	—
4% Red. Deb. 1962–67	116½	110	110½	—
BELFAST & C.D.				
Ord.	9	4½	4	—
FORTH BRIDGE				
4% Deb.	107	105	102½	—
4% Guar. ...	107 5/16	104	102½	—
G. NORTHERN (IRELAND)				
Ord.	19½	9¾	8	−½
G. SOUTHERN (IRELAND)				
Ord.	63	41	42	—
Prefce.	65	46	52	—
Guar.	97¼	81	75	−2
Deb.	99¾	83¼	92½	−½
L.P.T.B.				
4½% "A" ...	127¾	121	116½*	+1
5% "A"... ...	138¼	133½	125½*	+1
4½% "T.F.A." ...	111½	108⅛	106*	−2
5% "B"... ...	131¾	123¾	117½*	+2
"C"	112½	93	86	−1
MERSEY				
Ord.	40¾	23	29½	−2
4% Perp. Deb. ...	103	98	99	—
3% Perp. Deb. ...	78	74⅝	75½	—
3% Perp. Prefce.	68⅞	63¼	63½	—

* ex dividend

XUM

CONTRACTS AND TENDERS

Craven Bros. (Manchester) Ltd. has received an order from the Indian Stores Department for one electrically-driven axle journal returning, burnishing, and boss facing lathe.

Fredk. Braby & Co. Ltd. has received an order from the Bengal North Western Railway, to the inspection of Messrs. Rendel, Palmer & Tritton, for 1,610 (approximately 22½ tons) panel plates.

The Indian Stores Department has placed orders for switches and crossings as follow :—

Burn & Co. Ltd., 131 crossings and 45 switches.
Guest, Keen, Williams Limited, 285 crossings and 36 switches.
Alcock, Ashdown & Co. Ltd., 12 crossings and 97 switches.
Beruch & Comens (Engineers) Limited, 158 crossings and 88 switches.

The Madras & Southern Mahratta Railway Administration has placed the following orders, to the inspection of Messrs. Rendel, Palmer & Tritton :—

Carters Merchants Limited, 159 pairs of wagon wheels and axles.
English Steel Corporation, 50 carriage and wagon axles.
F. Krupp A.-G., 4 crank and 14 straight locomotive axles.
The Vulcan Foundry Co. Ltd., Duplicate locomotive parts, including connecting rods and steel boiler plates.

United Water Softeners Limited has received an order for two Zerolit water softening plants from the Central Argentine Railway.

The Crown Agents for the Colonies have recently placed orders for material and equipment as follow :—

Standard Telephones & Cables Limited, Dry core cable.
W. T. Henley's Telegraph Works Co. Ltd., Dry core cable.
B. & S. Massey Limited, Electric hammer.
Turners Asbestos Cement Company, Everite pipes.
Nuts & Bolts (Darlaston) Limited, Fish-bolts.
Wolverhampton Corrugated Iron Co. Ltd., Galvanised mild steel sheets.
Vernon & Co. Ltd., Gauze.
H. Berry & Co. Ltd., Hydraulic forging press, pump and accumulator.
W. & T. Avery Limited, Locomotive balancing tables.
Kitson & Co. Ltd., Locomotive fireboxes.
P. & W. Maclellan Limited,
Dorman, Long & Co. Ltd., M.s. angles, rails and fishplates.
The Whitehead Iron & Steel Co. Ltd., M.s. bars.
J. Walsh & Co. (Birmingham) Ltd., M.s. plates.
Phosphor Bronze Co. Ltd., Phosphor bronze metal.
T. Robinson & Son Ltd., Planing and moulding machine.
V. & R. Blakemore, Platelayers' beaters.
Steel Co. of Scotland Ltd., Rails.
Lancashire Steel Corporation, Rails.
United Steel Co. Ltd., Workington Iron & Steel Branch, Rails and steel sleepers.
Cargo Fleet Iron Co. Ltd., Rails.
Barrow Hæmatite Steel Co. Ltd., Rails and fishplates.
Guest Keen Baldwin's Iron & Steel Co. Ltd., Rails, fishplates and steel sleepers.
North West Rivet, Bolt & Nut Factory Limited, Rivets.
Geo. Richards & Co. Ltd., Slot drilling and keyway cutting machine.
Wolverhampton C.I. Co. Ltd., Steel sheets.
Stewarts and Lloyds Limited, Steel tubing.
Mechans Limited, Steelwork for tank.
Wm. Bain & Co. Ltd., Steelwork for roof.
E. Allen & Co. Ltd., Switch and crossing spares.

The Economical Boiler Washing Co. Ltd. has received an order from the L.N.E.R. for a double-tank double-pump boiler washing plant for installation at the Lincoln locomotive depot. This is the 23rd boiler washing plant ordered by the L.N.E.R. from this firm.

Important Diesel Orders for South America

The Uruguayan State Railways Administration has placed an order with Ganz & Company for 10 single-unit and five articulated diesel-mechanical railcars of 240 and 480-b.h.p. respectively. In addition to the order recorded in our issue of May 21, the Argentine State Railways Administration has placed a further order with Ganz & Company for the supply of four standard-gauge and 34 metre-gauge single-unit cars of 240-b.h.p. and for two three-car metre-gauge diesel trains of 640-b.h.p.

J. Baker & Bessemer Limited has received an order for 295 axles for locomotives, carriages and wagons from the Leopoldina Railway.

The directors of the Great Western Railway have authorised the placing of the following contracts :—

The supply of the following road vehicles :—
Cranes (Dereham) Limited : Four articulated trailer chassis.
Bromilow & Edwards Limited : Four movable rubber-floored bodies.
R. Pratt Limited : One 8-h.p. Ford saloon car ; two Fordson 6-wheeled chassis ; four Fordson industrial tractors.
Wm. Wadsworth & Sons Limited, and Pickerings Limited : Supply and erection of an electric passenger lift and an electric service lift to the extension to the Company's offices in Bishops Road, Paddington.
Harris & Shelden Limited : Provision of a new tobacco and confectionery kiosk on No. 1 platform, Paddington station.
Demolition & Construction Co. Ltd. : Reconstruction of Gypsy Lane bridge, Highworth branch.
W. & A. Edgell Limited : Supply and erection of a timber-framed warehouse at Monmouth (Troy) station.
Wm. Wadsworth & Sons Limited : Supply and erection of an electric goods lift at South Lambeth goods depot.
Ransomes & Rapier Limited : Supply of three 1-ton petrol electric mobile cranes to the goods depot, Hockley.

For Swindon works :—
The Mercury Truck & Tractor Co. Ltd. : Supply of a Mercury general purpose tractor.
The Churchill Machine Tool Co. Ltd. : Supply of a plain cylindrical grinding machine.
S. H. Heywood & Co. Ltd. : Supply and erection of two new grabs and control gear for 20-ton electric overhead cranes.

At the company's South Wales docks :—
C. H. Bailey Graham & Co. Ltd. : Repairs to inner gates, Queen Alexandra Dock, Cardiff.
The Pulsometer Engineering Co. Ltd. : Supply of two drainage pumps and motors and electric gear for three centrifugal pumps at Commercial Dock Pump House, Barry.

Overhaul of the following vessels :—
The Penarth Pontoon Slipway & Ship Repairing Co. Ltd. : Steam hopper barges *Viscount Churchill* and *Sir Ernest Palmer*.

The Great Western Railway announces that with a view to improving facilities for handling increasing traffic at Port Talbot docks, it is proposed to reconstruct in reinforced concrete a length of approximately 230 ft. of Talbot wharf, which has been disused for some time. When completed the wharf is to be equipped with three 3-ton hydraulic level-luffing cranes.

Taylor Bros. & Co. Ltd. has received an order for 25 pairs of wheels and axles for carriages and wagons, with light type solid wheels, from the Central Argentine Railway.

The Mozambique Ports, Railways & Transport Administration is calling for tenders, to be presented in Lourenço Marques by July 19, for the supply of four locomotives. Firms desirous of offering locomotives of United Kingdom manufacture can obtain further details of this call for tenders from the Department of Overseas Trade.

The South African Railways & Harbours Administration is calling for tenders (Tender No. 1312) for the supply and delivery of quantities of carriage trimmings, comprising canvas, linoleum and carpets, threads and twines, upholsterers' wadding and webbing, felt, haircloth, etc. for the twelve months ending December 31. Tenders endorsed " Tender No. 1312, for carriage trimmings " should reach the Secretary to the Tender Board, South African Railway Headquarter Offices, Johannesburg, by July 12.

Tenders are invited by the South African Railways & Harbours Administration, receivable in Johannesburg by July 12 for the supply of approximately 146 tons of steelwork for bridges.

Tenders are invited by the Egyptian State Railways Administration, receivable at the General Management, Cairo station, respectively on June 16, 22, and 30 for quantities of machine tools.

Tenders are invited by the North Western Railway of India, receivable by the Agent, Lahore, by June 16, for the supply of heavy material trolleys 5 ft. 6 in. gauge complete with brakes and to load up to 10 tons.

The Stores Purchase Committee, Government of Mysore, Bangalore, invites tenders receivable by June 22, for the supply of workshop machinery, including lathes, rotary blower and electric drill required for equipping the Krishnarajsagar division workshop.

Tenders are invited by the Chief Controller of Stores, Indian Stores Department (Engineering Section), Simla, receivable by June 21 for the supply of sets of locomotive driving, tender and bogie wheels required for the G.I.P. Railway at Mechanical Stores Depot, Parel, Bombay.

Tenders are invited by the Bengal-Nagpur Railway, receivable by June 18 at 132, Gresham House, Old Broad Street, London, E.C.2, for the supply of 17 HSM class locomotive boilers.

OFFICIAL NOTICES

South Indian Railway Co. Ltd.

THE Directors are prepared to receive Tenders for the supply of :—

SOLID DRAWN STEEL BOILER TUBES.

Specifications and Forms of Tender will be available at the Company's Offices, 91, Petty France, Westminster, S.W.1.

Tenders addressed to the Chairman and Directors of the South Indian Railway Limited, marked "Tender for Boiler Tubes," with the name of the firm tendering, must be left with the undersigned not later than 12 Noon, Friday, the 25th June, 1937.

The Directors do not bind themselves to accept the lowest or any Tender.

A charge, which will not be returned, will be made of 10s. for each copy of the Specification.

E. A. S. BELL,
Managing Director.

91, Petty France,
Westminster, S.W.1.
3rd June, 1937.

Crown Agents for the Colonies

COLONIAL GOVERNMENT APPOINTMENTS.

APPLICATIONS from qualified candidates are invited for the following post :—

TRAFFIC INSPECTOR required by the Government of the Gold Coast for the Railway Department for two tours of 12-24 months each, with prospect of permanency. Salary £360–£12—£560 a year. Outfit allowance of £25 and free uniform. Free passages, quarters and liberal leave on full salary. Candidates, aged 24-30, must have had practical experience in goods and passenger station accounts and clerical duties. They must also possess a knowledge of shunting and marshalling of trains and the rules relating to train working generally. Experience as a relief station master, relief clerk, or controller an advantage.

Apply at once by letter, stating age, whether married or single, and full particulars of qualifications and experience, and mentioning this paper, to the CROWN AGENTS FOR THE COLONIES, 4, Millbank, London, S.W.1, quoting M/5078.

Railway Benevolent Institution

THE Seventy-Ninth Annual Meeting of the Members of this Institution will be held in the Board Room, London & North Eastern Railway, King's Cross Station, London, N.1, on Friday, 25th June, 1937, at 4.0 p.m., to receive the Report of the Board of Management, grant Permanent Annuities to fifty-nine Widows and two Members, in the Officers' Department, also to grant Permanent Annuities to twenty-nine Widows and thirty-three Members in the Servants' Department, and to transact the ordinary business of the Institution. The Board will appoint to Contingent Annuities nine hundred and eighty-three Widows and four hundred and eighteen Members in the Servants' Department, being applicants in excess of the number of Permanent Annuities to be granted.

There will be no ballot on this occasion.

H. C. WALTON,
General Secretary.

23, Gordon Square,
London, W.C.1.
10th June, 1937.

Ministry of Transport

APPLICATIONS are invited for a full-time pensionable appointment of Railway Employment Assistant Inspector on the staff of the Chief Inspecting Officer of Railways, Ministry of Transport, on the scale £350 :18 :500 per annum with travelling expenses on usual Civil Service scales for official journeys.

Candidates should possess mechanical as well as operating experience on a British Railway and should be capable of holding enquiries and reporting upon accidents to railway employees.

Candidates must not have attained the age of 50 on the 1st September, 1937.

Applications, which should contain full particulars of age, education, training and experience, should be addressed to the Establishment Officer, Ministry of Transport, Whitehall Gardens, London, S.W.1, not later than 14th June, 1937.

Canvassing through Members of Parliament or in other ways will render a candidate liable to disqualification.

Central Argentine Railway Limited

NOTICE IS HEREBY GIVEN that the Transfer Books of the 4 per cent. Debenture Stock and the 3½ per cent. Central Debenture Stock of the Company will be closed from the 7th to the 19th June, both days inclusive, for the preparation of Warrants for interest for the Half Year ending 30th June, 1937.

RONALD LESLIE,
London Manager and Secretary.

34, Coleman Street,
London, E.C.2.
1st June, 1937.

REQUIRED for a large Wagon Works in India, a Works Inspector to take charge of Inspection Dept. Should have had similar experience in large modern works and be competent to undertake the inspection and testing of all material, component parts and completed steel carriage frames and wagons. Single man preferred, between 25 and 35 years of age, with good technical education. Five year agreement, free passages, provident fund, free unfurnished quarters, and salary according to qualifications. Apply by letter, with copies of testimonials, stating age and whether married or single, to "SOLEBAR," c/o W. ABBOTT, LTD., 32, Eastcheap, London, E.C.3.

Bengal-Nagpur Railway Company Limited

THE Directors are prepared to receive Tenders for :—

17 H.S.M. CLASS BOILERS.

Specification and Form of Tender can be obtained at the Company's Offices, 132, Gresham House, Old Broad Street, London, E.C.2, on or after Tuesday, 1st June, 1937.

A fee of 20s. will be charged for each copy of the Specification, which is *NOT* returnable.

Tenders must be submitted not later than Noon on Friday, 18th June, 1937.

The Directors do not bind themselves to accept the lowest or any Tender, and reserve to themselves the right of reducing or dividing the order.

By Order of the Board,
T. R. WYNNE,
Managing Director.

RAILWAY AND OTHER REPORTS

Bengal-Nagpur Railway—An interim dividend from reserve in respect of the year ended March 31, 1937, of ¼ per cent. (the same) on the ordinary stock, will be payable on July 1, making, together with the guaranteed interest of 1¾ per cent. then due, a distribution of 2 per cent., the same as a year ago.

Bombay, Baroda & Central India Railway—The directors will propose, at the general meeting to be held in July next, the payment, in addition to the half-year's guaranteed interest of 1½ per cent., of a final dividend for the financial year ended at March 31, 1937, of 1½ per cent., making a total payment in July next of 3 per cent., less income tax. The return on the capital stock for the whole year will, therefore, be 6 per cent., less income tax, the same as for the previous year.

Southdown Motor Services Limited.—For the year ended March 31, 1937, this company, which is jointly controlled by the Southern Railway Company and Tilling & British Automobile Traction Limited, secured a gross revenue of £951,067, compared with £897,183 in the previous year. After deducting £501,845 (£483,387) for operating and maintenance expenses, £153,956 (£151,548) for Road Act duties, rates, and taxes, £55,391 (£51,137) for administration and general expenses, £143,186 (£116,086) for depreciation, and other items chargeable against revenue, there remains a profit of £85,391 (£84,625), to which must be added £18,093 brought forward, making a total of £103,484, compared with £110,594 for the previous year. Out of this amount it is proposed to place £10,000 (£25,000) to reserve, to pay, as in the previous year, a dividend of 10 per cent., requiring £75,000, and to carry forward £18,484. For the previous year there was also a bonus distribution of 5 per cent., but last September the capital was increased from £426,250 to £750,000 by an allotment of bonus shares.

Hants and Dorset Motor Services Limited—The directors of this company, which is controlled jointly by Tilling and British Automobile Traction Limited and the Southern Railway Company, report for the year ended March 31, last a net profit after appropriating £2,000 to general reserve and providing for depreciation and directors' fees, of £61,720, against £55,059 for 1935-36. Adding £14,234 brought forward, makes a total available of £75,954. The preference dividend takes £9,750, and on the ordinary shares the total distribution for the year is to be 10 per cent. dividend and 2½ per cent. bonus, at the same rate as for the previous year, but requiring £50,000 (against a smaller sum in the previous year), on account of the increase of the ordinary capital from £320,000 to £400,000 by the allotment during the year of 80,000 ordinary shares of £1 each. The bonus to employees is raised from £1,500 to £1,750, leaving £14,454 to be carried forward. The freehold of the company's offices and garage at Royal Mews, Norwich Avenue, Bournemouth, has been purchased, and the bus station at Bournemouth has been extended. During the year a few small bus businesses have been acquired.

Wellington, Grey and Bruce Railway—The estimated earnings for the half-year ending June 30, 1937, applicable to meet interest on the 7 per cent. bonds, will admit of the payment, on July 1, of £4 0s. 8d. per £100 bond. This payment will be applied as follows : £3 7s. 9d. in final discharge of coupon No. 110, due July 1, 1925, and 12s. 11d. on account of coupon No. 111, due January 1, 1926.

James Keith and Blackman Co. Ltd.—The report for the year ended March 31 last shows an available balance, after providing for preference dividend, depreciation, and reserves against doubtful debts and income tax, of £58,416, which compares with £39,035 for the previous year. The ordinary dividend is raised from 15 per cent. to 20 per cent., and requires £30,000 ; a sum of £5,000, against £3,000, is appropriated to writing off freehold land and buildings at Arbroath, and the sum of £10,000, against £3,000, is appropriated to reserve, and the carry-forward is increased from £10,160 to £13,416.

Railway Share Market

The decision to substitute a less complicated tax for the N.D.C. proposals resulted in a recovery in most sections of the stock and share markets. Home railway stocks were active and tended to higher prices in view of the more confident views as to prospects which continue to be expressed in the market. The N.D.C. would not have affected the main line railways, and it remains to be seen whether this will be the case with the new proposals which are expected to be announced shortly.

Traffic receipts for the past week were not an important market factor, although they were regarded as quite encouraging when it is remembered that they compare with Whitsun traffics of a year ago. Among the junior stocks Great Western has been the steadiest feature at around 61¾, it being more generally realised that a favourable yield is offered and that prospects of a larger dividend than 3 per cent. seem reasonably promising. L.M.S.R. ordinary was particularly active around 33, and the 4 per cent. preference and 1923 preference stocks were favoured at 87 and 77½ respectively in view of the yields given. Southern deferred at 22⅞ was also active but a good deal of profit-taking was in evidence on any rise. The preferred was firm at 91½, buyers being attracted by the yield and the prospect of a satisfactory increase in net earnings this year. L.N.E.R. second preference became rather more prominent at 25½ on the favourable traffics for the past week, while the preferred was better at 10⅜. The ½ per cent. with which dividends were resumed on the second preference for 1936 represented rather a generous division of profits, and if a similar course is to be followed this year prospects of a larger dividend are regarded in the market as quite satisfactory. It is, however, early yet to estimate dividend payments. A clearer view should be possible when the half-yearly statements are issued next month. London Transport "C" was dull and rather uncertain.

Argentine railway stocks attracted more attention on Wednesday and B.A. Gt. Southern, Central Argentine and other ordinary stocks which had made rather lower prices earlier in the week showed partial recovery, the traffic receipts being regarded favourably. Preference stocks and debentures were fairly steady, but Cordoba Central debentures were reactionary and B.A. Pacific debenture issues also made moderately lower prices. Elsewhere, San Paulo and Leopoldina were steady, but Nitrate Rails declined. Canadian Pacific were dull in sympathy with the trend of American issues.

Traffic Table of Overseas and Foreign Railways Publishing Weekly Returns

	Railways	Miles open 1936-37	Week Ending	Traffics for Week: Total this year	Traffics for Week: Inc. or Dec. compared with 1936	No. of Weeks	Aggregate Traffics to Date: Totals: This Year	Aggregate Traffics to Date: Totals: Last Year	Aggregate Traffics to Date: Increase or Decrease	Shares or Stock	Prices: Highest 1936	Prices: Lowest 1936	Prices: June 2, 1937	Prices: Yield (See Note)
				£	£		£	£	£					
South & Central America.	Antofagasta (Chili) & Bolivia	834	30.5.37	13,280	– 3,630	22	367,830	295,520	+ 72,310	Ord. Stk.	25	15¼	21	Nil
	Argentine North Eastern	753	29.5.37	8,741	– 1,018	48	420,848	381,951	+ 38,897	,,	12	2	10	Nil
	Argentine Transandine	—	—	—	—	—	—	—	—	A. Deb.	54	45	85	41 11/16
	Bolivar	174	Apr., 1937	6,000	– 1,150	17	23,200	26,900	– 3,700	6 p.c. Deb.	9	5	8½	Nil
	Brazil	—	—	—	—	—	—	—	—	Bonds.	16	11½	15½	3¼
	Buenos Ayres & Pacific	2,806	29.5.37	106,576	+ 20,442	48	$4,605,068	4,090,169	+ 514,899	Ord. Stk.	17½	6	12	Nil
	Buenos Ayres Central	190	15.5.37	$121,500	+ $22,200	46	$6,472,800	$4,936,760	+ $1,536,040	Mt. Deb.	31½	11	32½	Nil
	Buenos Ayres Gt. Southern	5,084	29.5.37	128,164	+ 16,589	48	7,178,306	6,232,647	+ 945,659	Ord. Stk.	31¾	13¾	29½	Nil
	Buenos Ayres Western	1,930	29.5.37	48,015	+ 8,062	48	2,405,041	2,184,456	+ 220,585	,,	29¾	11	24½	Nil
	Central Argentine	3,700	29.5.37	139,439	+ 45,256	48	7,362,046	5,646,918	+ 1,715,128	,,	32932	8¾	28½	Nil
	Do.	—	—	—	—	—	—	—	—	Dfd.	21	4½	11	Nil
	Cent. Uruguay of M. Video	273	22.5.37	13,495	+ 3,528	47	586,705	523,289	+ 63,416	Ord. Stk.	7¾	3	5	Nil
	Do. Eastern Extn.	311	22.5.37	3,153	+ 799	47	117,335	97,892	+ 19,443	—	—	—	—	—
	Do. Northern Extn.	185	22.5.37	2,679	+ 1,271	47	83,599	69,552	+ 14,047	—	—	—	—	—
	Do. Western Extn.	211	22.5.37	700	– 133	47	46,236	41,367	+ 4,869	—	—	—	—	—
	Cordoba Central	1,218	29.5.37	$5,480	+ 10,450	48	1,532,870	1,331,520	+ 201,350	Ord. Inc.	5	1	5½	Nil
	Costa Rica	188	Mar., 1937	29,517	+ 9,007	39	171,651	127,429	+ 44,222	Stk.	36½	32	36	59/16
	Dorado	70	Apr., 1937	14,400	+ 800	17	62,400	51,100	+ 10,300	1 Mt. Db.	107	101½	104½	5¾
	Entre Rios	810	29.5.37	13,716	+ 2,341	48	615,053	514,858	+ 100,195	Ord. Stk.	17	6	13	Nil
	Great Western of Brazil	1,082	29.5.37	5,700	– 400	22	165,600	183,700	– 18,100	Ord. Sh.	1/2	3/16	1/2	Nil
	International of Cl. Amer.	794	Apr., 1937	$563,617	+ $46,024	17	$2,195,243	$2,080,641	+ $114,602	—	—	—	—	—
	Interoceanic of Mexico	—	—	—	—	—	—	—	—	1st Pref.	1/2	–/6	1/2	Nil
	La Guaira & Caracas	22¾	Apr., 1937	6,205	+ 1,790	17	23,080	17,375	+ 5,705	Stk.	9	3	7½	Nil
	Leopoldina	1,918	29.5.37	21,718	+ 6,739	22	475,720	364,276	+ 111,444	Ord. Stk.	10½	3½	6	Nil
	Mexican	483	21.5.37	$344,500	+ $37,000	20	$6,310,000	$5,337,500	+ $972,500	,,	1¼	¼	5/8	Nil
	Midland of Uruguay	319	Apr., 1937	8,764	+ 1,152	43	87,446	72,500	+ 14,946	,,	1½	1/8	1/2	Nil
	Nitrate	384	31.5.37	3,730	+ 25	22	74,705	61,734	+ 12,971	Ord. Sh.	63/6	41/9	2½	Nil
	Paraguay Central	274	22.5.37	$1,058,000	+ $685,000	47	$138,923,000	$111,198,000	+ $27,725,000	Pr. Li. Stk.	85	71	82½	7¼
	Peruvian Corporation	1,059	Apr., 1937	97,082	+ 13,685	43	827,889	786,623	+ 41,266	Pref.	15	9	12	Nil
	Salvador	100	2?.5.37	¢24,050	+ ¢7,700	47	¢1,143,258	¢920,446	+ ¢222,812	Pr. Li.Db.	18	16	22½	Nil
	San Paulo	153½	23.5.37	34,957	+ 1,233	21	652,355	589,018	+ 63,337	Ord. Stk.	86	46½	90½	5½
	Taltal	164	Apr., 1937	2,800	+ 55	43	34,610	35,495	– 885	Ord. Sh.	115/32	14/–	1⅛	87/8
	United of Havana	1,353	29.5.37	23,115	– 4,711	48	1,315,153	1,151,227	+ 163,926	Ord. Stk.	3¼	1	3	Nil
	Uruguay Northern	73	Apr., 1937	843	– 44	43	10,100	8,327	+ 1,773	Deb. Stk.	5	3	9	Nil
Canada.	Canadian National	23,566	21.5.37	772,434	+ 87,708	20	11,737,269	13,165,570	+ 1,571,699	—	—	—	—	—
	Canadian Northern	—	—	—	—	—	—	—	—4 p.c.	Perp. Dbs.	76	51	70	511/16
	Grand Trunk	—	—	—	—	—	—	—	—	4 p.c. Gar.	104¾	99¾	98 1/2§	4 1/16
	Canadian Pacific	17,228	21.5.37	525,400	+ 7,000	20	10,321,600	9,541,200	+ 780,400	Ord. Stk.	16¾	10 15/16	13½	Nil
India.	Assam Bengal	1,329	30.4.37	39,090	+ 641	4	110,302	103,924	+ 6,378	Ord. Stk.	87¾	82¼	75½	4
	Barsi Light	202	30.4.37	3,780	+ 45	4	13,312	11,655	+ 1,687	Ord. Sh.	77½	65½	47	105/8
	Bengal & North Western	2,107	10.5.37	92,374	+ 1,258	6	366,531	356,006	+ 10,525	Ord. Stk.	319	292 5/8	304	5 15/16
	Bengal Dooars & Extension	161	10.5.37	3,161	– 110	6	12,877	12,745	+ 132	,,	127½	118	100½	5½
	Bengal-Nagpur	3,268	10.5.37	201,825	+ 13,813	6	830,100	752,764	+ 77,336	,,	104	100¼	91½	4 5/8
	Bombay, Baroda & Cl. India	3,072	20.5.37	274,650	+ 20,025	7	1,471,250	1,365,375	+ 55,875	,,	114	110½	112½	5 5/16
	Madras & Southern Mahratta	3,229	10.5.37	162,600	– 5,265	6	673,050	684,005	– 10,955	,,	116½	108½	107 1/2§	7 7/16
	Rohilkund & Kumaon	572	10.5.37	17,619	– 1,099	6	75,721	77,647	– 1,926	,,	311	286	304	5 15/16
	South Indian	2,532	30.4.37	119,792	+ 4,041	4	350,660	351,311	– 651	,,	107½	102 5/16	101½	5 7/16
Various.	Beira-Umtali	204	Mar., 1937	85,489	+ 19,434	26	418,485	382,261	+ 36,224	—	—	—	—	—
	Bilbao River & Cantabrian	15	Mar., 1937	370	– 837	13	3,052	4,677	– 1,625	—	—	—	—	—
	Egyptian Delta	620	10.5.37	6,142	+ 529	6	24,895	22,326	+ 2,569	Prf. Sh.	2¼	1 5/8	1 1/2	Nil
	Great Southern of Spain	—	—	—	—	—	—	—	—	Inc. Deb.	1½	1/8	3½	Nil
	Kenya & Uganda	1,625	Apr., 1937	266,245	+ 21,428	17	1,117,191	992,425	+ 124,766	—	—	—	—	—
	Manila	—	—	—	—	—	—	—	—	B. Deb.	50½	37	45	7¾
	Midland of W. Australia	277	Apr., 1937	13,052	+ 455	43	132,650	137,462	– 4,812	Inc. Deb.	97	93½	96	4 1/8
	Nigerian	1,905	10.4.37	78,092	+ 41,089	2	115,719	61,700	+ 54,019	—	—	—	—	—
	Rhodesia	2,451	Mar., 1937	409,930	+ 129,028	26	2,109,905	1,726,146	+ 383,759	4 p.c. Db.	107	103½	107½	3¾
	South Africa	13,263	8.5.37	587,215	– 1,124	6	3,393,418	3,204,705	+ 188,713	—	—	—	—	—
	Victoria	4,728	Nov., 1936	868,988	+ 45,953	21	3,995,540	3,959,297	+ 36,243	—	—	—	—	—
	Zafra & Huelva	112	Mar., 1937	14,819	+ 5,299	13	44,012	30,750	+ 13,262	—	—	—	—	—

NOTE.—Yields are based on the approximate current prices and are within a fraction of 1/16.

† Receipts are calculated @ 1s. 6d. to the rupee. § ex dividend. Salvador and Paraguay Central receipts are in currency.

The variation in Sterling value of the Argentine paper peso has lately been so great that the method of converting the Sterling weekly receipts at the par rate of exchange has proved misleading, the amount being overestimated. The statements are based on the current rates of exchange and not on the par value.